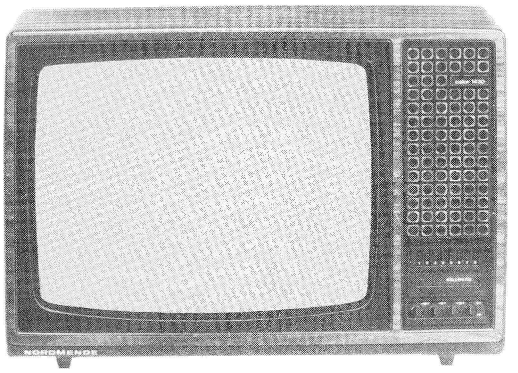
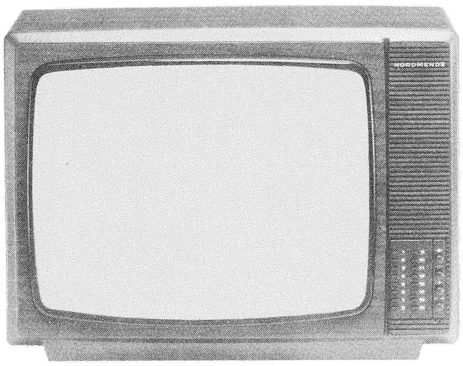
TECHNISCHER KUNDENDIENST

Service-Information





FFS-Chassis F 10 783.503. B 00 $\boxed{72}$

8-/16-Tasten-Bedienteil

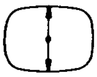
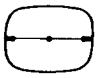
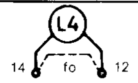
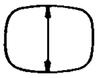
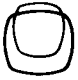
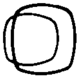
8-/16 buttons control unit

Sezione comandi a 8/16 tasti

NORDMENDE

Diese Angaben und Hinweise sind ausschließlich für den Service des Fachhändlers bestimmt · Änderungen vorbehalten · These instructions are for service dealers only · Subject to modification · Questi dati e queste istruzioni sono riservati ai tecnici del servizio assistenza · Con riserva di modifiche

Einstellarbeiten / Initial adjustment / Operazioni di messa a punti

Einstellung Adjustment Taratura	Position Posizione	einstellen auf adjust to regolare su	Hinweise Notes Avvisi
Hauptspannung Principale voltage Tensione principale	PP 01	109 V ± 1 V	◐ + ☼ = min.
Vertikalsynchronisation Verticalsynchronisation Sincronizzione verticale	PF 01		
Zeilenfrequenz Line frequency Frequenca di riga	PL 02		IL 01 
Vertikalamplitude Vertical amplitude Ampiezza verticale	PF 02		
Vertikalposition Vertical position Posizione verticale	PF 04		
Horizontalposition Horizontal position Posizione orrizontale	PL01		
5,5-MHz minimum	LV 07	5,5 MHz min.	Oscilloscope (Z7)
4,43-MHz minimum	VV 03	4,43 MHz min.	Oscilloscope (Z7)
Referenz-Oscillator 4,43 MHz **A**	CC 14	+ V, ± U farblos colourness senza sfumature di colore	FUBK-Sendertestbild FUBK transmitter test pattern Monoscopio del transmettiore
B	CC 14	langsames Durchlaufen der Farbbalken until the colour bars wander slowly barre colori movimento lento	Farbtestbild Colour bar signal Segnale barre colore ③ ② 4,2 . . . 4,4 V → ①
PAL-Amplitude	PC 01	Paarigkeit min. Pairing min. Parita min.	
PAL-Phase	LC 05		
Schirmgitterspannung Screen grid voltage Tensione griglia schermo	PU$_{G2}$	Katode mit höchster Spannung auf 140 V– einstellen Adjust the cathode with the highest voltage to 140 V DC Regolare il catodo con la tensione più alta su 140 V–	PV 03 PV 04 PV 06 } auf mechan. Mitte stellen set to center position portare in posiz. meccanica media ◐ + ☼ = min. (Z6) + (Z7) + (Z9) messen measure misurare
Weißabgleich White alignment Taratura del bianco	PV 03	85 V$_{SS}$ (V$_{pp}$)	FUBK-Sendertestbild FUBK transmitter test pattern Monoscopio del transmettiore ◐ = max. ☼ = min. Oscilloscope (Z7)
	PV 04 PV 06	die hellen Flächen weiß einstellen adjust bright areas on screen to white regol. le parti chiare in modo che siano bianche	
Grauabgleich Gray alignment Taratura dei grigi	PV 50 PV 70	die dunklen Flächen farblos einstellen adjust dark areas on screen to colourness regolare le parti scure in modo che siano senza sfumature di colore	◐ = min. ☼ = Bild gerade sichtbar picture just visable immagine appena visibile Weiß- und Grauabgleich eventuell wiederholen Repeat white and gray alignment if necessary Pripetizione eventuale della taratura del bianco e dei grigi

Achtung!

Bildröhre und Ablenksystem sind eine festverbundene Einheit und vom Werk optimal eingestellt.

Folgende Punkte sind unbedingt zu beachten:

Keine Veränderungen der Halskomponenten vornehmen.

Keine versiegelten Schrauben am Ablenksystem lösen.

Jeglichen Zugriff (Transport) an den Halskomponenten unterlassen.

Note!

Cathode ray tube and deflection system are a complete fixed unit which is optimally adjusted at the factory.

It is essential that the following points be observed:

Do not alter the position of the neck components.

Do not slacken any sealed screws.

Do not lift or hold the unit by the neck components.

Attenzione!

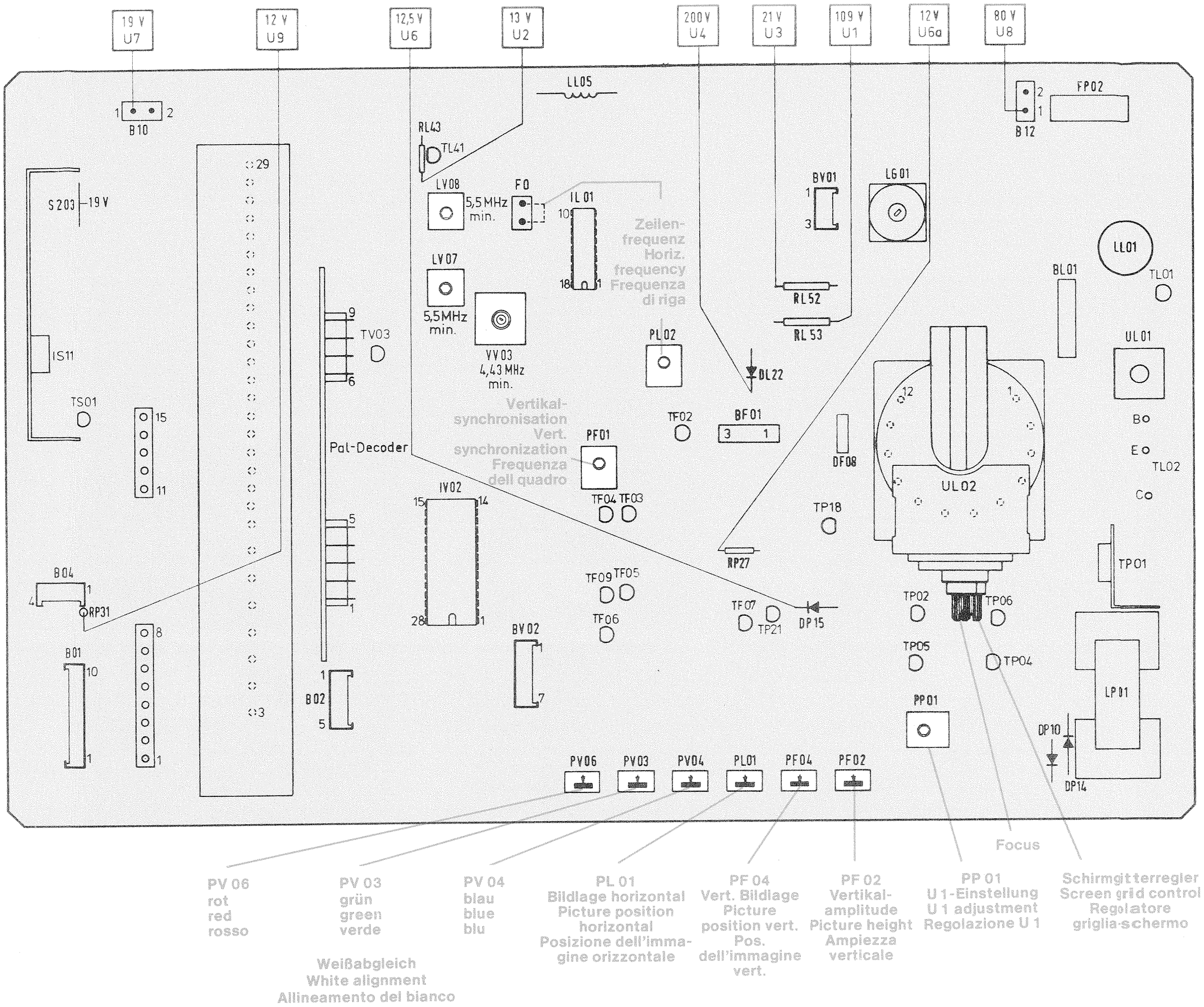
Il cinescopio ed il giogo di deflessione formano un'unità solidamente collegata e sono regolati in modo ottimo dalla fabbrica.

E'indispensabile osservare le istruzioni seguenti:

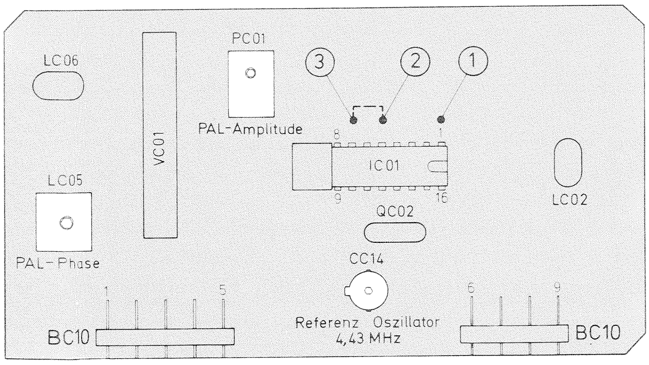
Effettuare nessuna modificazione sui componenti a collare.

Non togliere delle viti sigillate sul giogo di deflessione.

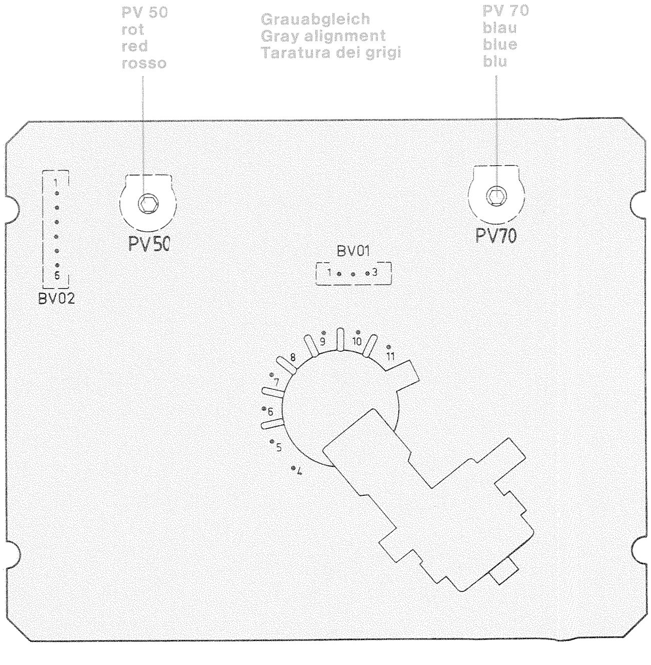
Per il trasporto mai sollevare l'apparecchio ai componenti a collare.

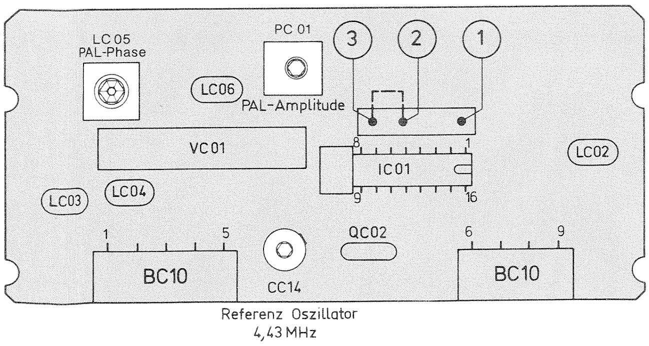

19 V U7
12 V U9
12,5 V U6
13 V U2
200 V U4
21 V U3
109 V U1
12 V U6a
80 V U8
B10
LL05
RL43
TL41
FP02
B12
S203 19 V
LV08
F0
IL01
5,5 MHz min.
Zeilenfrequenz
Horiz. frequency
Frequenza di riga
BV01
LG01
LL01
TL01
BL01
LV07
5,5MHz min.
VV03
4,43 MHz min.
RL52
RL53
PL02
UL01
IS11
TV03
DL22
TS01
Vertikalsynchronisation
Vert. synchronization
Frequenza dell quadro
TF02
BF01
Bo
Eo
TL02
Co
Pal-Decoder
PF01
DF08
UL02
IV02
TF04
TF03
TP18
B04
RP31
RP27
TP01
TF09
TF05
TF07
TP21
DP15
TP02
TP06
B01
BV02
TF06
TP05
TP04
B02
LP01
PP01
DP10
DP14
PV06
PV03
PV04
PL01
PF04
PF02
Focus
PV 06 rot red rosso
PV 03 grün green verde
PV 04 blau blue blu
Weißabgleich
White alignment
Allineamento del bianco
PL 01 Bildlage horizontal
Picture position horizontal
Posizione dell'immagine orizzontale
PF 04 Vert. Bildlage
Picture position vert.
Pos. dell'immagine vert.
PF 02 Vertikalamplitude
Picture height
Ampiezza verticale
PP 01 U 1-Einstellung
U 1 adjustment
Regolazione U 1
Schirmgitterregler
Screen grid control
Regolatore griglia-schermo

Grundplatte
Basic P.C.B.
Piastra di base
Bestückungsseite – Component side – Parte componenti


LC06
PC01
PAL-Amplitude
VC01
IC01
LC05
PAL-Phase
QC02
LC02
CC14
Referenz Oszillator 4,43 MHz
BC10
BC10

PAL-Decoder
Decoder PAL
592.651
Bestückungsseite – Component side – Parte componenti

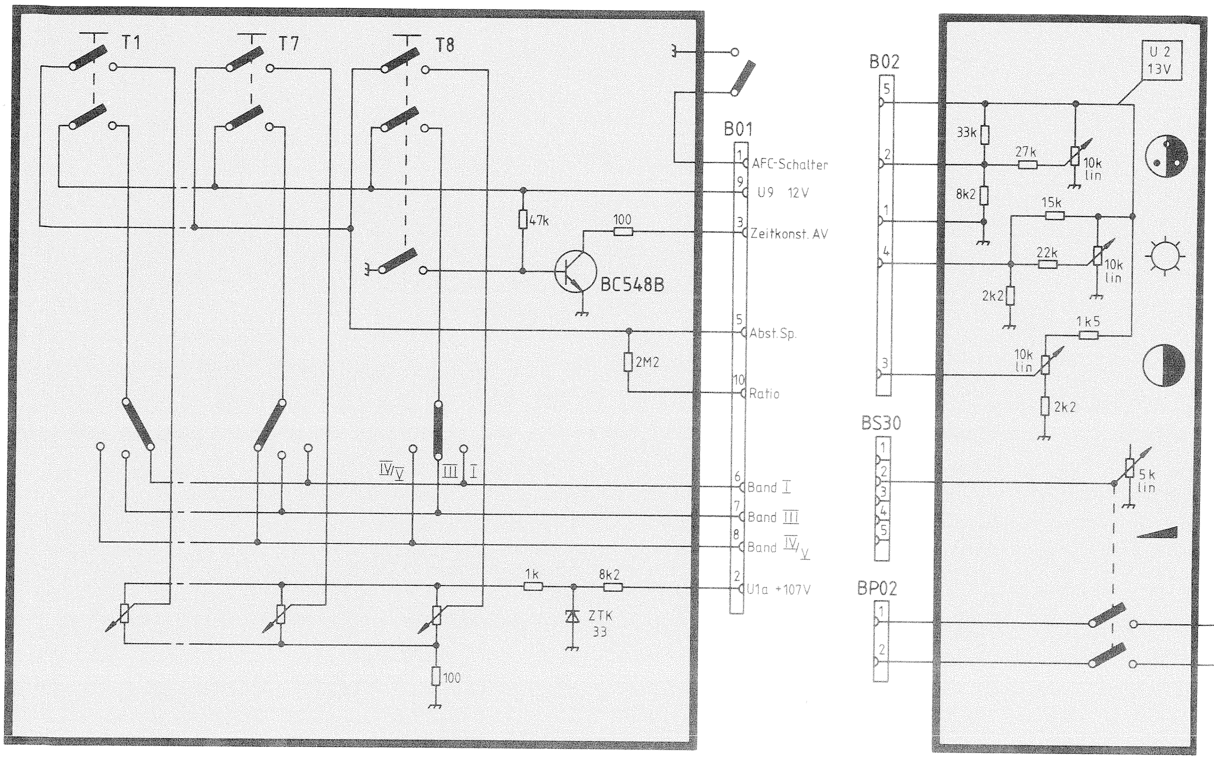

PV 50 rot red rosso
Grauabgleich
Gray alignment
Taratura dei grigi
PV 70 blau blue blu
PV50
PV70
BV01
BV02


LC05 PAL-Phase
PC 01
LC06
PAL-Amplitude
VC01
IC01
LC02
LC03
LC04
QC02
BC10
CC14
BC10
Referenz Oszillator 4,43 MHz

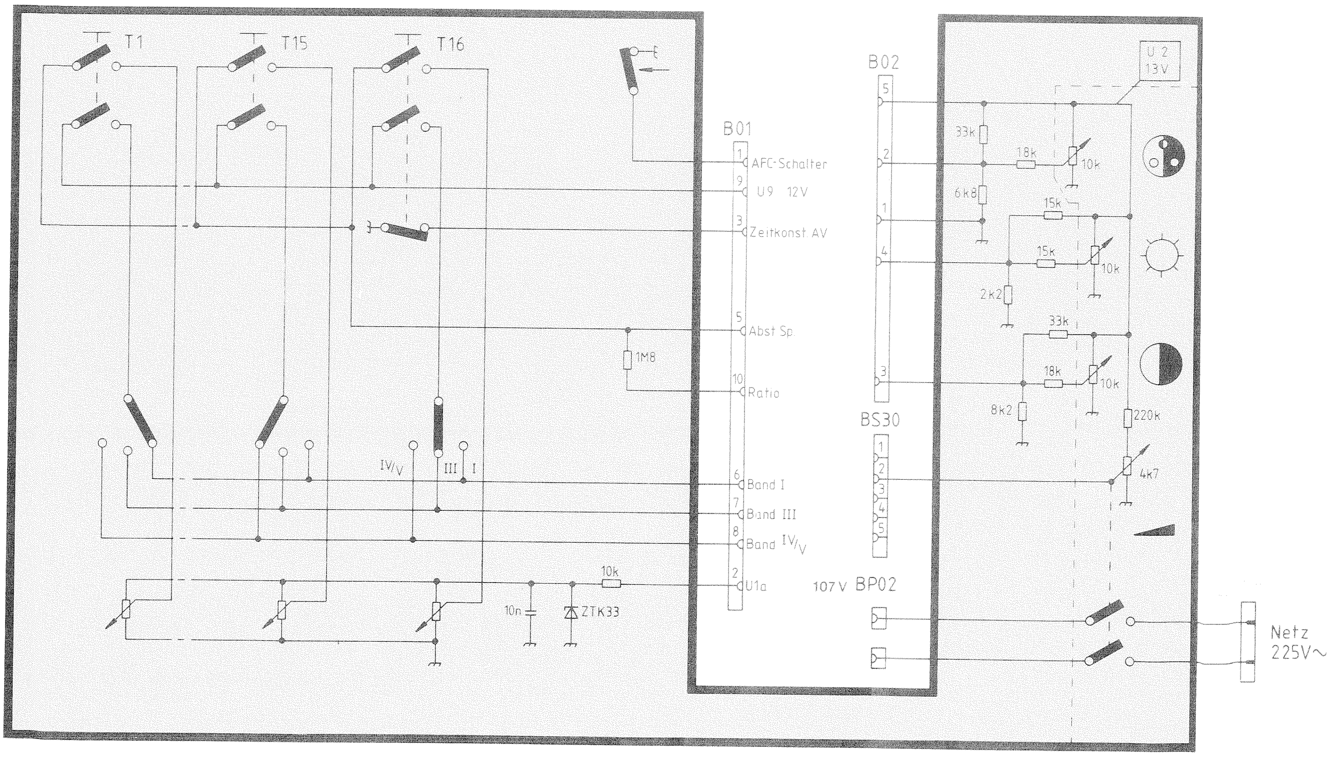
PAL-Decoder
Decoder PAL (MELF)
592.675
Bestückungsseite – Component side – Parte componenti

Bildrohranachluß-Platine
P.C.B. CRT socket
Piastra zoccolo cinescopio
592.802.B
Lötseite – Soldered side – Lato saldature

SC 1430
8-Tasten-Bedienteil
8 buttons control unit 783.583.A
Sezione comandi a 8 tasti

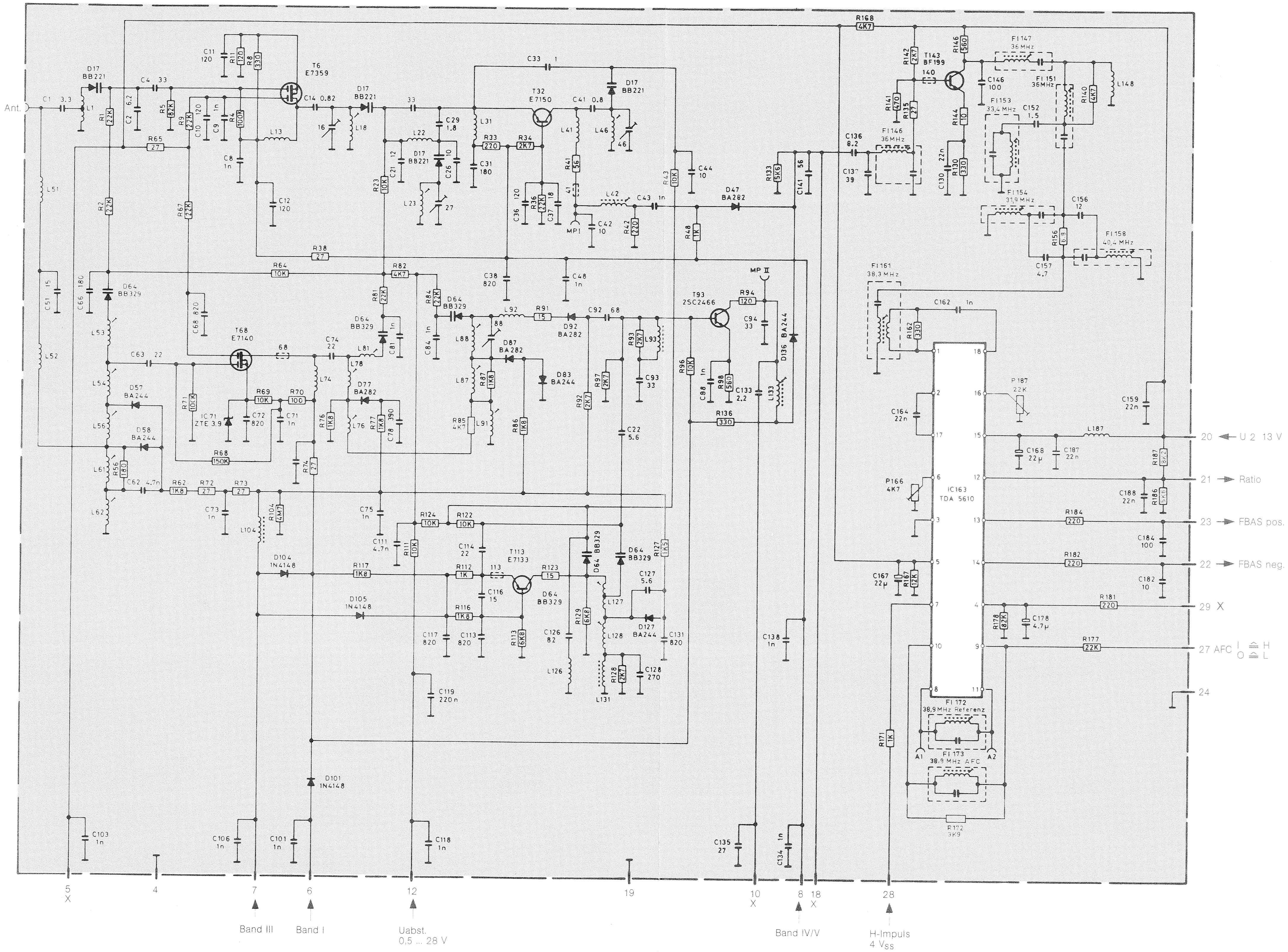

T1
T7
T8
B01
1 AFC-Schalter
9 U9 12V
3 Zeitkonst. AV
5 Abst.Sp.
10 Ratio
6 Band I
7 Band III
8 Band IV/V
2 U1a +107V
47k
100
BC548B
2M2
IV/V
III
I
1k
8k2
ZTK 33
100
B02
5
2
1
4
3
U 2 13V
33k
27k
10k lin
8k2
15k
22k
10k lin
2k2
1k5
10k lin
2k2
BS30
1
2
3
4
5
5k lin
BP02
1
2
Netz 225V~

Color 1530
16-Tasten-Bedienteil
16 buttons control unit 784.580.A
Sezione comandi a 16 tasti


T1
T15
T16
B01
1 AFC-Schalter
9 U9 12V
3 Zeitkonst AV
5 Abst Sp
10 Ratio
6 Band I
7 Band III
8 Band IV/V
2 U1a
1M8
IV/V
III
I
10k
10n
ZTK33
107V
BP02
B02
5
2
1
4
3
U 2 13V
33k
18k
10k
6k8
15k
15k
10k
2k2
33k
18k
10k
8k2
220k
4k7
BS30
1
2
3
4
5
Netz 225V~

HF-Block
RF block
Unità AF

MTS 2000 A 276.196

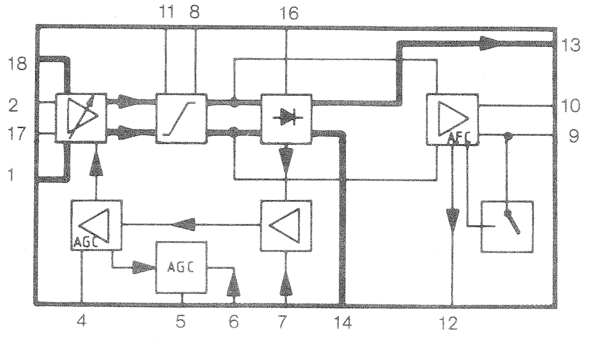

Ant.
T6 E7359
T32 E7150
T68 E7140
T93 2SC2466
T113 E7133
T143 BF199
IC71 ZTE 3.9
IC163 TDA 5610
R168 4K7
Fi 147 36 MHz
Fi 151 36 MHz
Fi 153 33,4 MHz
Fi 146 36 MHz
Fi 154 31,9 MHz
Fi 158 40,4 MHz
Fi 161 38,9 MHz
Fi 172 38,9 MHz Referenz
Fi 173 38,9 MHz AFC
MP I
MP II
P187 22K
P166 4K7
20 ◄ U 2 13 V
21 ► Ratio
23 ► FBAS pos.
22 ► FBAS neg.
29 X
27 AFC I ≙ H, O ≙ L
24
5 X
4
7
6
12
19
10 X
8
18 X
28
Band III
Band I
Uabst. 0.5 ... 28 V
Band IV/V
H-Impuls 4 V$_{ss}$

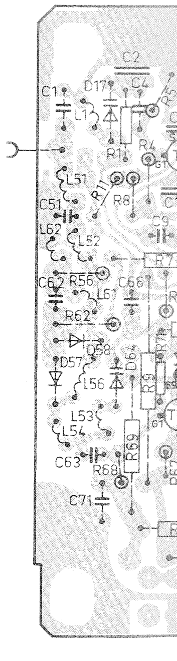
X nicht angeschlossen
X not connected
X non collegate

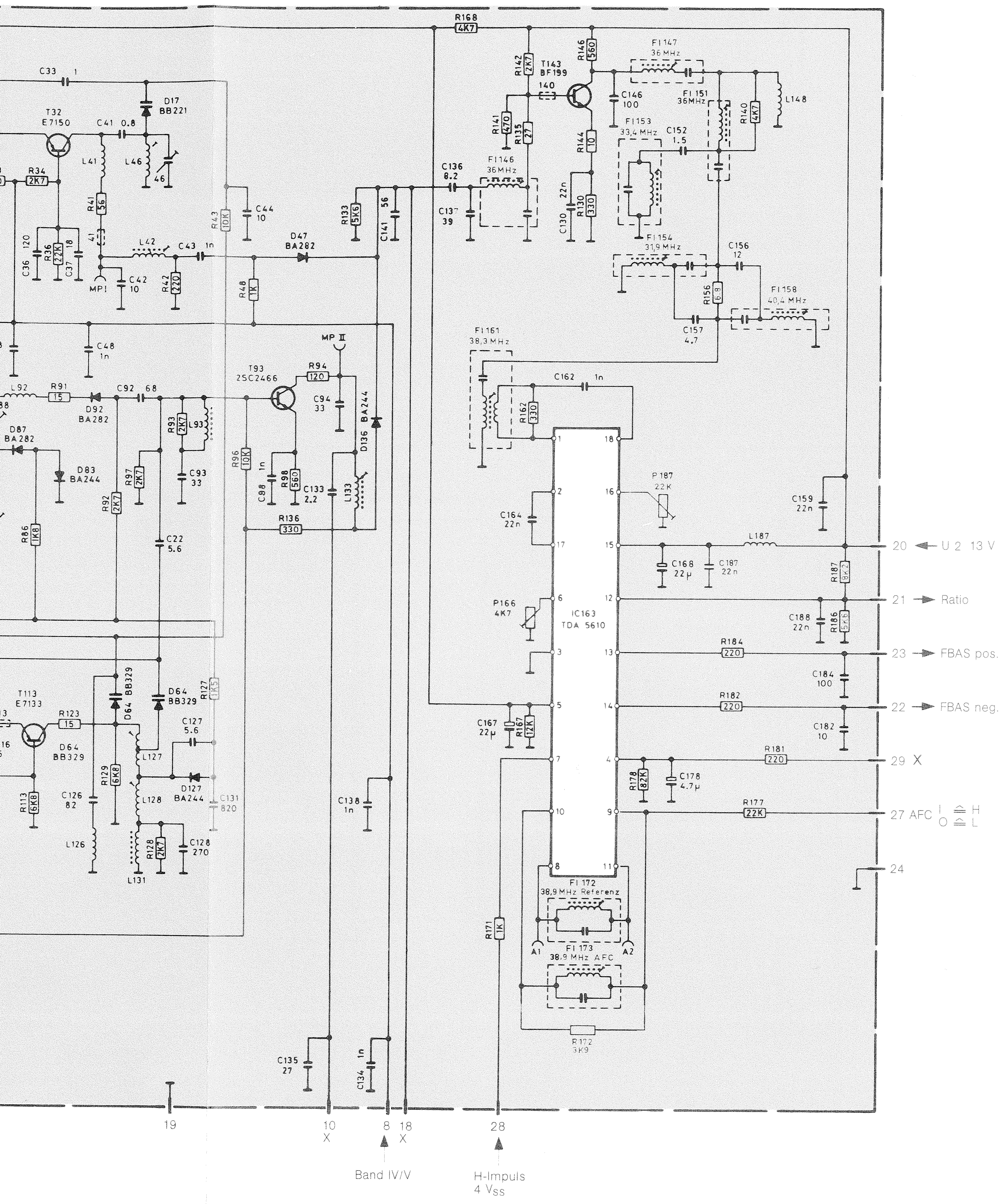
Bandumschaltung
Band switch
Commutazione di banda

6	7	8	Pin
12 V	-1,5 V	0 V	Band I
0 V	12 V	0 V	Band III
0 V	0 V	12 V	Band IV/V

IC 163
TDA 5610


11
8
16
18
2
17
1
13
10
9
AGC
AGC
AFC
4
5
6
7
14
12

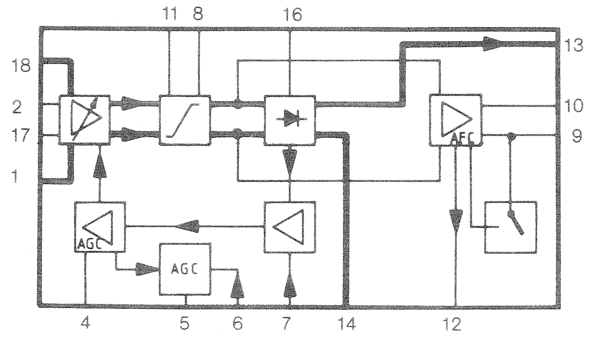

C2
C1
D17
C4
L1
R1
L51
R8
C51
L62
L52
C62
R56
C66
L61
R62
D58
D64
D57
L56
L53
L54
C63
R68
C71

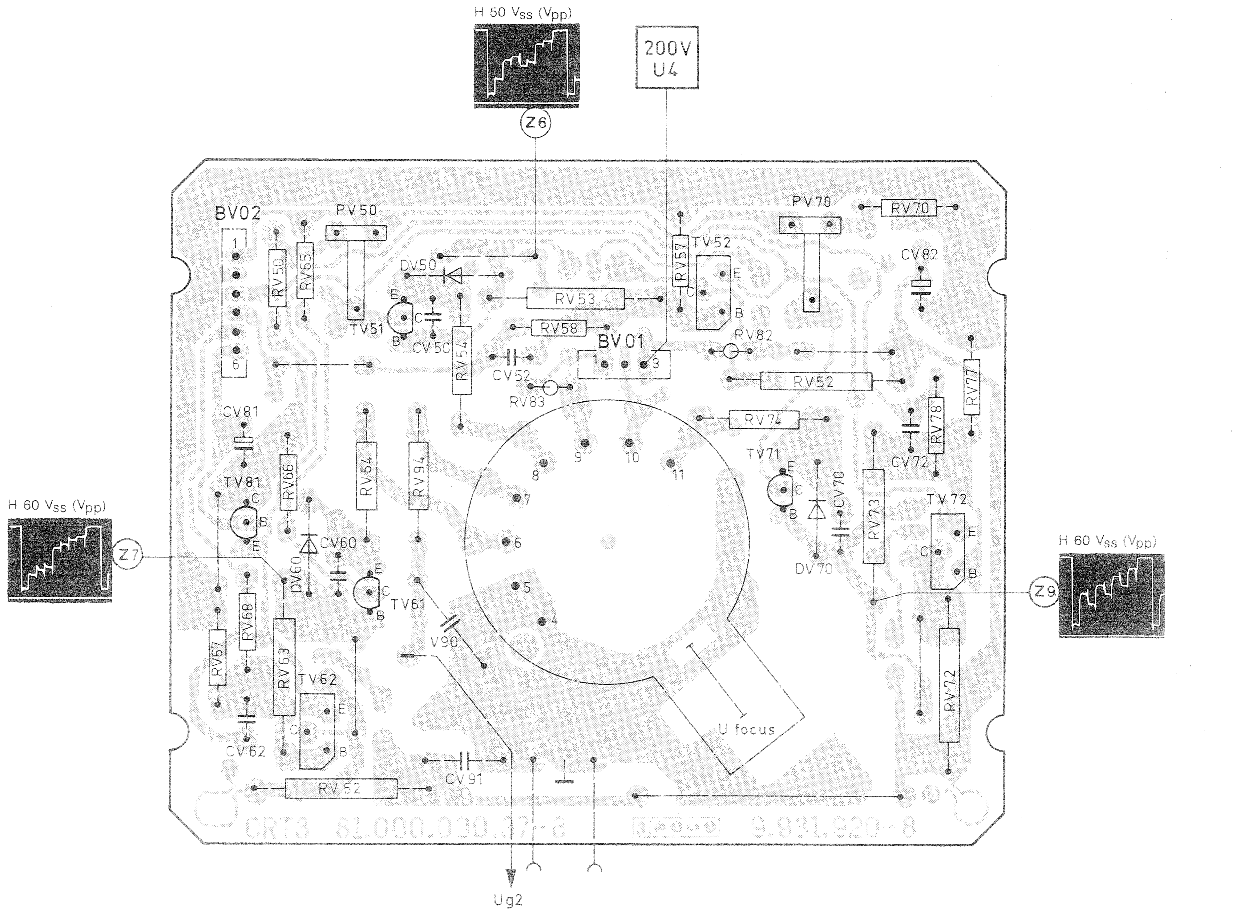

R168 4K7
C33 1
D17 BB221
T32 E7150
C41 0.8
L41
L46
R34 2K7
R41 56
L42
C43 1n
D47 BA282
C44 10
R43 10K
MP I
C42 10
R42 220
R48 1K
R142 2K7
T143 BF199
R146 560
Fi147 36 MHz
C146 100
Fi151 36 MHz
L148
R140 4K7
Fi153 33,4 MHz
C152 1.5
R141 470
R135 27
R144 10
C136 8.2
Fi146 36 MHz
C137 39
R133 5K6
C141 56
C130 22n
R130 330
Fi154 31,9 MHz
C156 12
R156 6.8
Fi158 40,4 MHz
C157 4.7
C48 1n
MP II
T93 2SC2466
R94 120
C94 33
D136 BA244
R91 15
C92 68
D92 BA282
D87 BA282
R93 2K7
L93
C93 33
D83 BA244
R97 2K7
R92 2K7
R96 10K
C98 1n
R98 560
C133 2.2
L133
R136 330
R86 1K8
C22 5.6
Fi161 38,3 MHz
C162 1n
R162 330
P187 22K
C164 22n
C159 22n
L187
C168 22µ
C187 22n
R187
P166 4K7
IC163 TDA 5610
C188 22n
R186
R184 220
C184 100
R182 220
C182 10
C167 22µ
R167 12K
R181 220
R178 82K
C178 4,7µ
R177 22K
Fi172 38,9 MHz Referenz
Fi173 38,9 MHz AFC
A1
A2
R172 3K9
R171 1K
T113 E7133
R123 15
D64 BB329
R127
C127 5.6
L127
D127 BA244
C131 820
R129 6K8
L128
R113 6K8
C126 82
L126
R128 2K7
C128 270
L131
C138 1n
C135 27
C134 1n
20 ◄ U 2 13 V
21 ► Ratio
23 ► FBAS pos.
22 ► FBAS neg.
29 X
27 AFC I ≙ H / O ≙ L
24
19
10 X
8
18 X
28
Band IV/V
H-Impuls 4 Vss

andumschaltung
and switch
ommutazione di banda

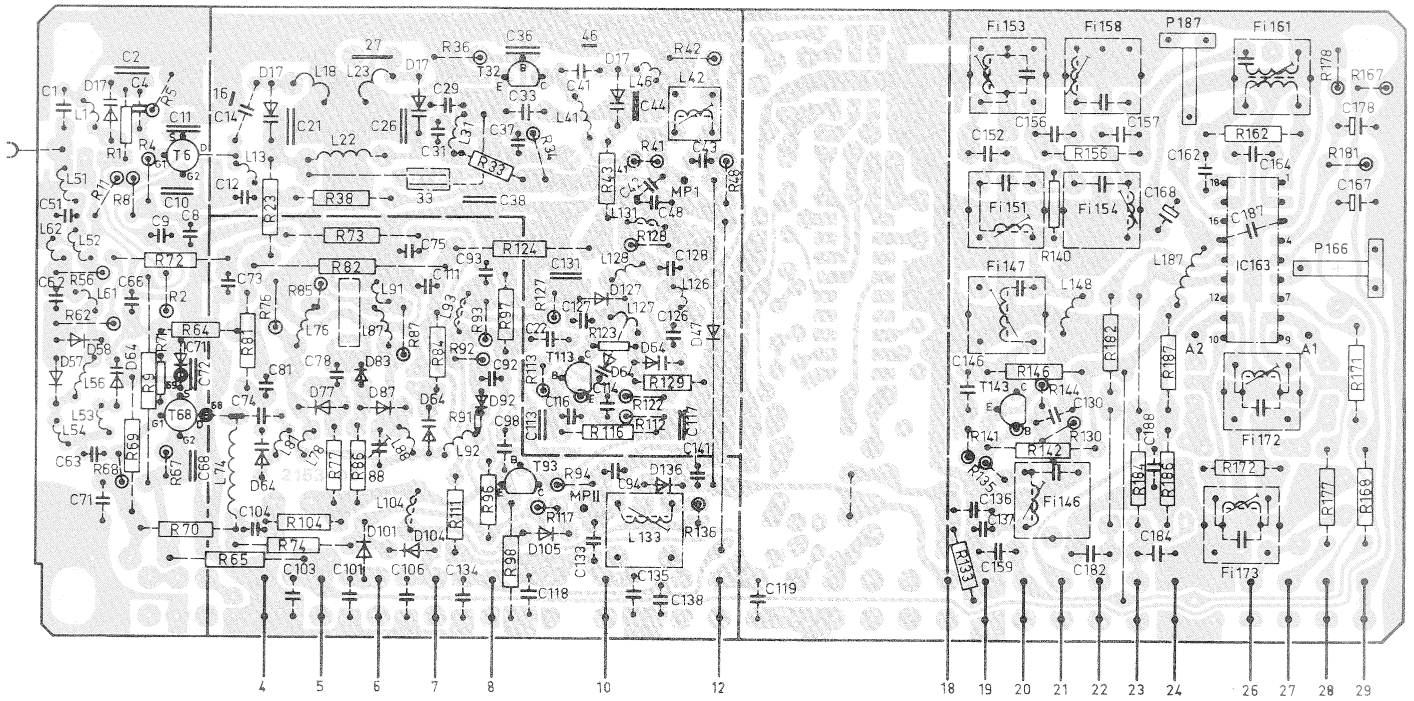
6	7	8	Pin
12 V	-1,5 V	0 V	Band I
0 V	12 V	0 V	Band III
0 V	0 V	12 V	Band IV/V

IC 163
TDA 5610

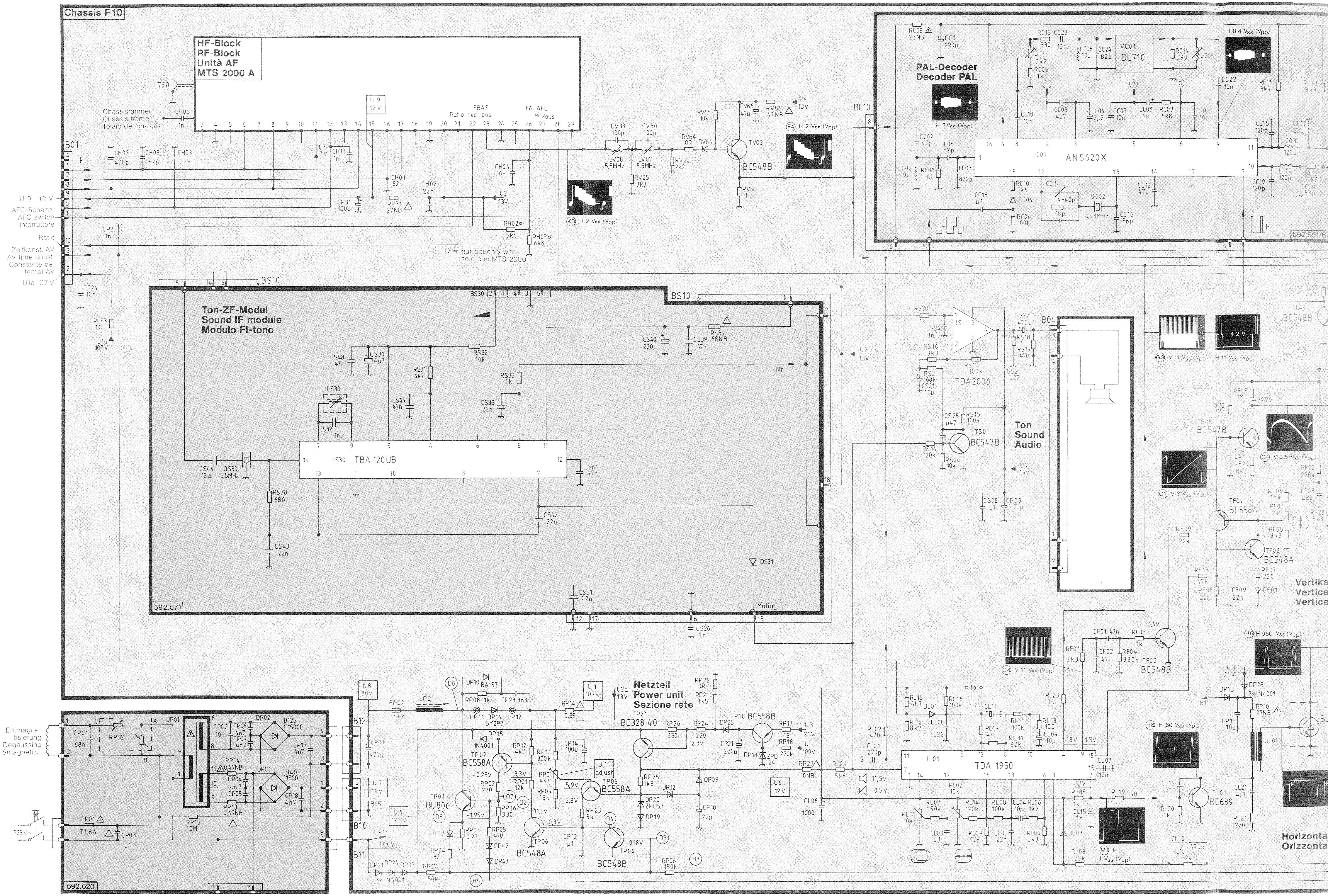

11 8
16
18
2
17
1
13
10
9
AGC
AGC
AFC
4
5
6
7
14
12

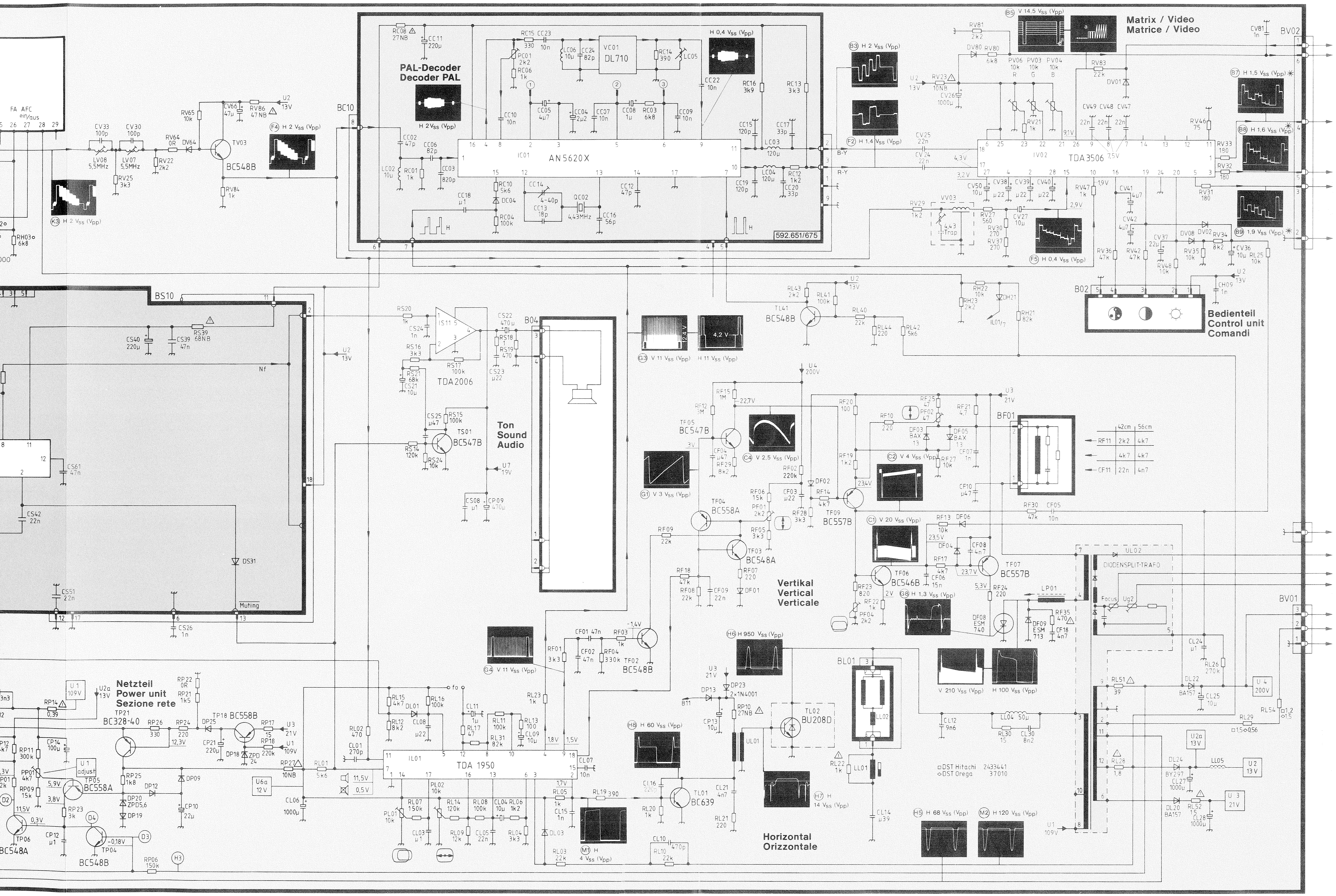

H 50 Vss (Vpp)
200V U4
Z6
BV02
PV50
PV70
RV70
TV52
DV50
RV53
RV58
BV01
CV82
RV82
RV52
CV52
RV83
CV81
TV81
TV71
CV72
TV72
RV74
RV77
RV78
H 60 Vss (Vpp)
Z7
Z9
CV60
DV60
TV61
V90
TV62
RV62
CV62
CV91
U focus
DV70
CV70
Ug2
CRT3 81.000.000.37-8
9.931.920-8

Bildrohranschluß-Platine
P.C.B. CRT socket **592.802.B**
Piastra zoccolo cinescopio
Lötseite – Soldered side – Lato saldature

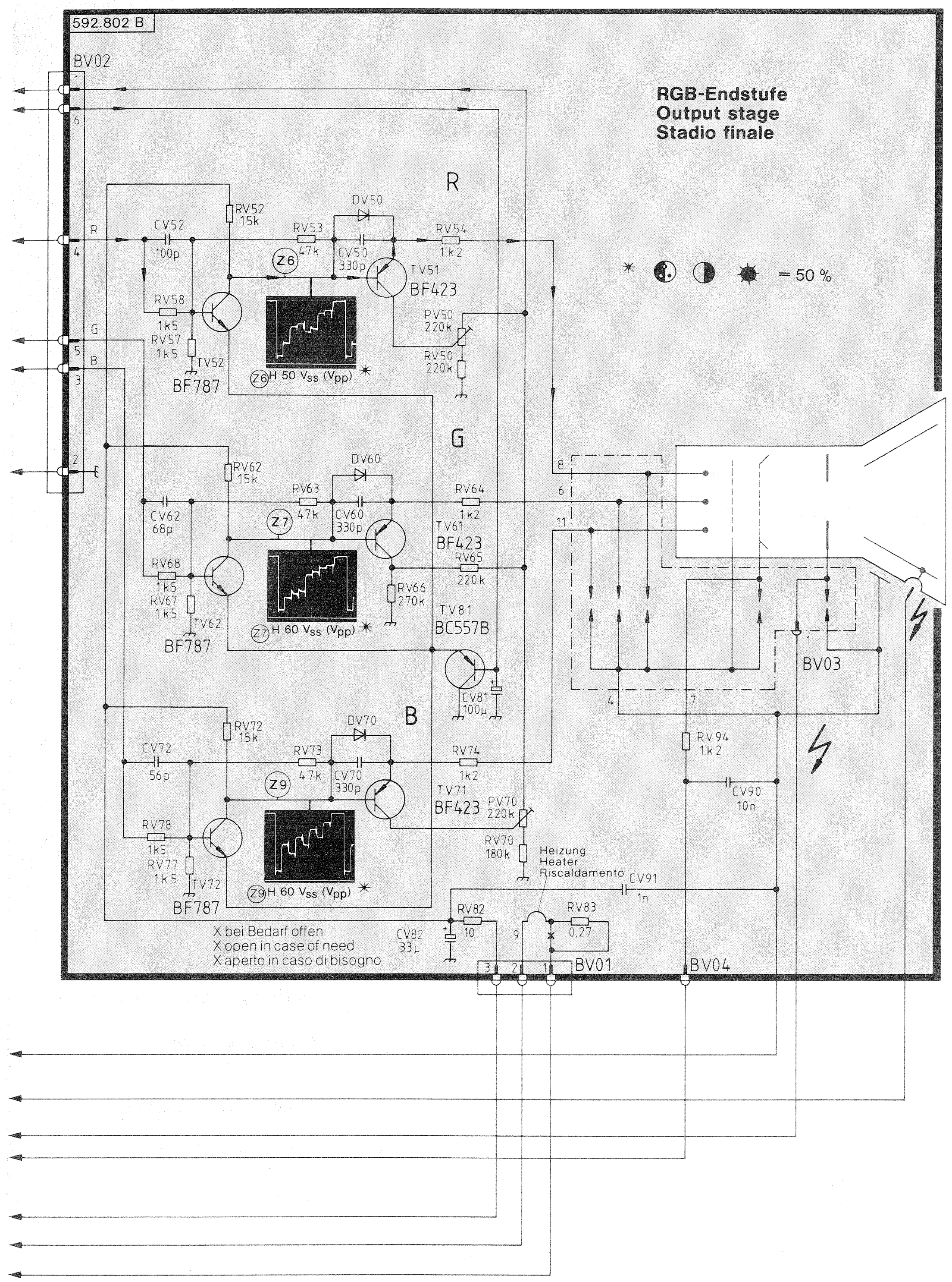

Fi153
Fi158
P187
Fi161
Fi151
Fi154
Fi147
L148
IC163
P166
Fi146
Fi172
Fi173
T143
T93
T113
T68
T32
4
5
6
7
8
10
12
18
19
20
21
22
23
24
26
27
28
29

Leiterplatte HF-Block
P.C.B. RF block **MTS 2000 A 276.196**
Piastra Unità AF
Lötseite – Soldered side – Lato saldature

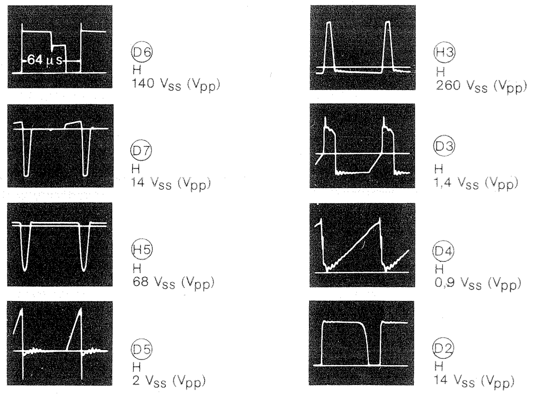

Chassis F10
HF-Block
RF-Block
Unità AF
MTS 2000 A
75Ω
Chassisrahmen
Chassis frame
Telaio del chassis
CH06 1n
U 9 12 V
FBAS
Ratio neg pos
FA AFC ein/aus
B01
CH07 470p
CH05 82p
CH03 22n
U5 7V
CH11 1n
CH01 82p
CH02 22n
CH04 10n
CP31 100µ
RP31 27NB
U2 13V
RH02 5k6
RH03 6k8
U 9 12 V
AFC-Schalter
AFC switch
Interruttore
Ratio
Zeitkonst. AV
AV time const.
Constante dei tempi AV
U1a 107 V
CP25 1n
CP24 10n
RL53 100
U1a 107V
○ = nur bei/only with solo con MTS 2000
CV33 100p
CV30 100p
LV08 5,5MHz
LV07 5,5MHz
RV25 3k3
RV64 0R
DV64
RV22 2k2
RV65 10k
CV66 47µ
RV86 47NB
U2 13V
TV03
BC548B
RV84 1k
Ⓚ3 H 2 Vss (Vpp)
Ⓕ4 H 2 Vss (Vpp)
BC10
PAL-Decoder
Decoder PAL
H 2Vss (Vpp)
RC08 27NB
CC11 220µ
RC15 330
CC23 10n
PC01 2k2
RC06 1k
LC06 10µ
CC24 82p
VC01 DL710
RC14 390
LC05
H 0,4 Vss (Vpp)
CC22 10n
RC16 3k9
RC13 3k3
CC10 10n
CC05 4µ7
CC04 2µ2
CC07 10n
CC08 1µ
RC03 6k8
CC09 10n
CC02 47p
CC06 82p
IC01 AN5620X
LC02 10µ
RC01 1k
CC03 820p
RC10 5k6
DC04
CC14 4-40p
CC13 18p
QC02 4,43MHz
CC16 56p
CC18 µ1
RC04 100k
CC12 47p
CC15 120p
CC17 33p
LC03 120µ
CC19 120p
LC04 120µ
RC12 1k2
CC20 33p
592.651/67
BS10
Ton-ZF-Modul
Sound IF module
Modulo FI-tono
BS30
CS48 47n
CS31 4µ7
RS31 4k7
RS32 10k
CS40 220µ
CS39 47n
RS39 68NB
U2 13V
Nf
LS30
CS32 1n5
CS49 47n
RS33 1k
CS33 22n
IS30 TBA 120UB
CS44 12p
QS30 5,5MHz
CS61 47n
RS38 680
CS42 22n
CS43 22n
DS31
CS51 22n
592.671
Muting
CS26 1n
RS20 1k
CS24 1n
IS11
CS22 470µ
RS18 1
RS19 470
CS23 µ22
B04
RS16 3k3
RS21 68k
CS21 10µ
RS17 100k
TDA2006
CS25 µ47
RS15 100k
TS01 BC547B
Ton
Sound
Audio
RS14 120k
RS24 10k
U7 19V
CS08 µ1
CP09 470µ
Ⓖ3 V 11 Vss (Vpp)
H 11 Vss (Vpp)
4,2 V
RL43 2k2
TL41 BC548B
RF15 1M
22,7V
RF12 3M
TF05 BC547B
CF04 µ47
RF29 8k2
Ⓒ4 V 2,5 Vss (Vpp)
Ⓖ1 V 3 Vss (Vpp)
RF02 220k
RF06 15k
PF01 2k2
CF03 µ22
RF28 3k3
TF04 BC558A
RF09 22k
RF05 3k3
TF03 BC548A
RF07 220
RF18 47k
RF08 22k
CF09 22n
DF01
Vertika
Vertica
Vertica
Ⓖ4 V 11 Vss (Vpp)
CF01 47n
RF03 1k
-1,4V
RF01 3k3
CF02 47n
RF04 330k
TF02 BC548B
Ⓗ6 H 950 Vss (Vpp)
U3 21V
DP23 2×1N4001
DP13
RP10 27NB
CP13 10µ
Entmagnetisierung
Degaussing
Smagnetizz.
CP01 68n
RP32
UP01
CP02 10n
CP06 4n7
CP07 4n7
DP02
B125 C1500C
CP17 4n7
RP14 0,47NB
CP04 4n7
CP05
DP01
B40 C1500C
CP18 4n7
RP13 0,47NB
FP01 T1,6A
CP03 µ1
RP15 10M
225V~
592.620
U8 80V
B12
FP02 T1,6A
LP01
CP11 470µ
U7 19V
B05
U6 12,5V
B10
DP13 11,6V
B11
DP21 DP24 DP03 3×1N4001
RP07 150k
RP04 82
DP17
TP01 BU806
DP10 BA157
RP08 1k
CP23 3n3
LP11 DP14 BY297 LP12
DP15 1N4001
TP02 BC558A
-0,25V
RP02 220
RP03 0,27
RP05 470
DP42
DP43
RP12 4k7
RP01 12k
RP16 330
13,3V
-1,95V
TP06 BC548A
11,5V
0,3V
RP11 300k
PP01 4k7
RP09 15k
CP14 100µ
U1 109V
U1 adjust
RP14 0,39
U2a 13V
5,9V
3,8V
TP05 BC558A
RP23 3k
CP12 µ1
TP04 BC548B
-0,18V
Netzteil
Power unit
Sezione rete
TP21 BC328-40
RP26 330
RP24 220
12,3V
RP22 0R
RP21 1k5
DP25
CP21 220µ
TP18 BC558B
DP18 ZPD 24
RP17 15
RP18 220k
U3 21V
U1 109V
RP25 1k8
DP12
DP20 ZPD5,6
DP19
DP09
CP10 22µ
RP06 150k
U6a 12V
RP27 10NB
RL01 5k6
11,5V
0,5V
CL06 1000µ
RL02 470
CL01 270p
RL15 4k7
DL01
RL16 100k
RL12 8k2
CL08 µ22
CL11 1µ
RL17 47
RL11 100k
RL31 82k
RL13 100
CL09 10µ
RL23 1k
1,8V
1,5V
IL01 TDA 1950
CL07 10n
PL01 10k
RL07 150k
CL03 µ1
PL02 10k
RL14 120k
RL09 12k
RL08 100k
CL05 22n
CL04 10µ
RL06 1k2
RL04 3k3
DL03
RL05 1k
CL15 1n
1,7V
RL19 390
RL03 22k
Ⓜ1 H 4 Vss (Vpp)
CL16
RL20 1k
TL01 BC639
CL21 4n7
RL21 220
CL10 470p
RL10 22k
Ⓗ8 H 60 Vss (Vpp)
UL01
Horizonta
Orizzonta
fo

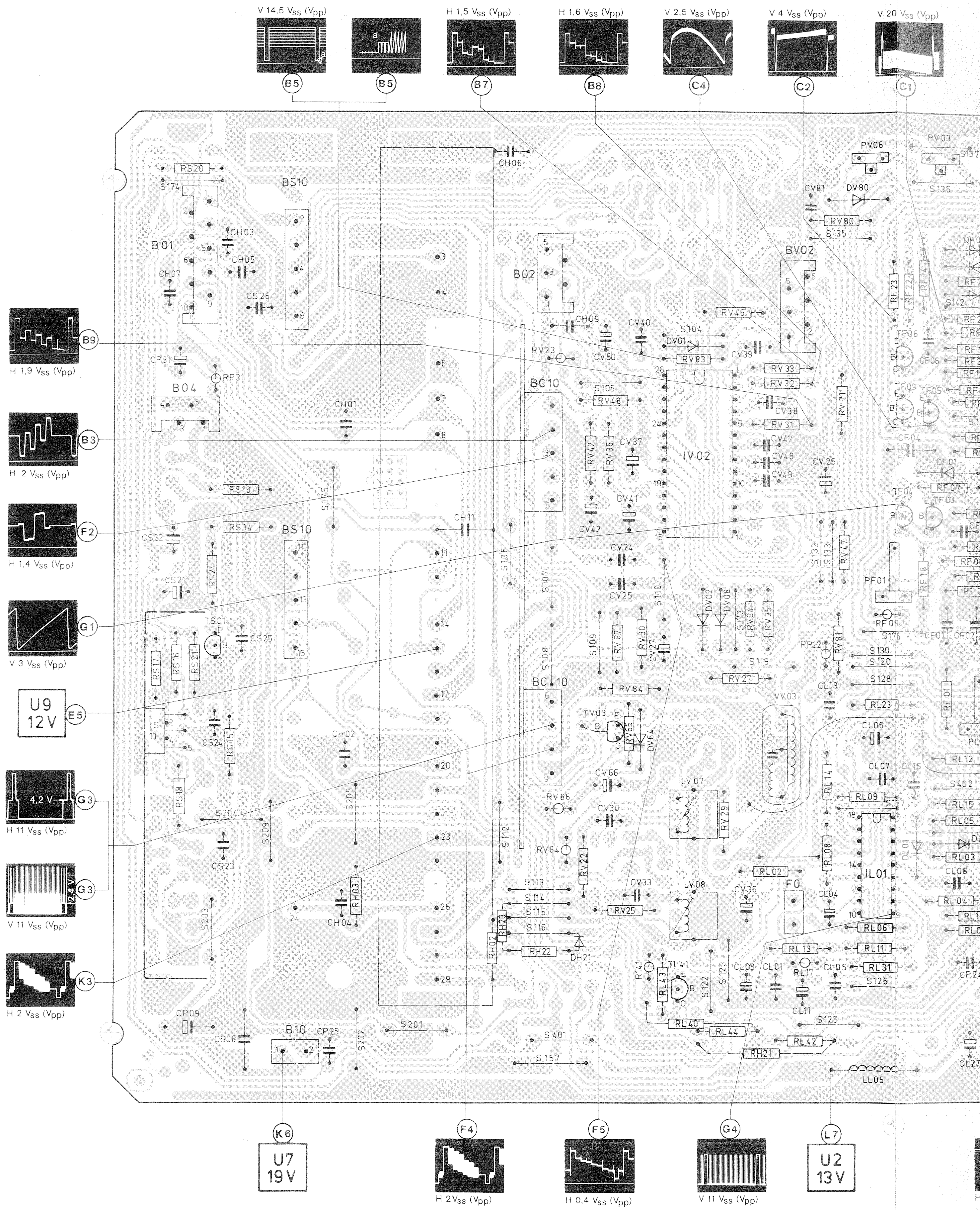


PAL-Decoder
Decoder PAL
AN5620X
IC01
VC01
DL710
592.651/675
H 2 Vss (Vpp)
H 0,4 Vss (Vpp)
4,43MHz
BC10
B-Y
R-Y
Matrix / Video
Matrice / Video
TDA3506
IV02
BV02
Bedienteil
Control unit
Comandi
B02
BC548B
TV03
FA AFC
ein/aus
5,5MHz
Ton
Sound
Audio
TDA2006
IS11
TS01
BC547B
B04
BS10
Nf
Muting
DS31
Vertikal
Vertical
Verticale
BC547B
BC558A
BC548A
BC557B
BC546B
BF01
42cm
56cm
RF11
CF11
2k2
4k7
22n
4n7
UL02
DIODENSPLIT-TRAFO
Focus
Ug2
BV01
Horizontal
Orizzontale
BU208D
TL02
BC639
TL01
BL01
LL02
UL01
TDA 1950
IL01
BC548B
TF02
DST Hitachi 2433441
DST Orega 37010
Netzteil
Power unit
Sezione rete
BC328-40
TP21
BC558B
TP18
BC558A
TP05
BC548B
TP04
BC548A
TP06
adjust
U1 109V
U2 13V
U3 21V
U4 200V
U2a 13V
U6a 12V
V 11 Vss (Vpp)
H 11 Vss (Vpp)
12,4 V
4,2 V
V 2,5 Vss (Vpp)
V 3 Vss (Vpp)
V 4 Vss (Vpp)
V 20 Vss (Vpp)
H 1,3 Vss (Vpp)
V 210 Vss (Vpp)
H 100 Vss (Vpp)
H 950 Vss (Vpp)
H 60 Vss (Vpp)
H 14 Vss (Vpp)
H 68 Vss (Vpp)
H 120 Vss (Vpp)
H 4 Vss (Vpp)
V 14,5 Vss (Vpp)
H 1,5 Vss (Vpp)
H 1,6 Vss (Vpp)
H 1,9 Vss (Vpp)
H 1,4 Vss (Vpp)
H 0,4 Vss (Vpp)

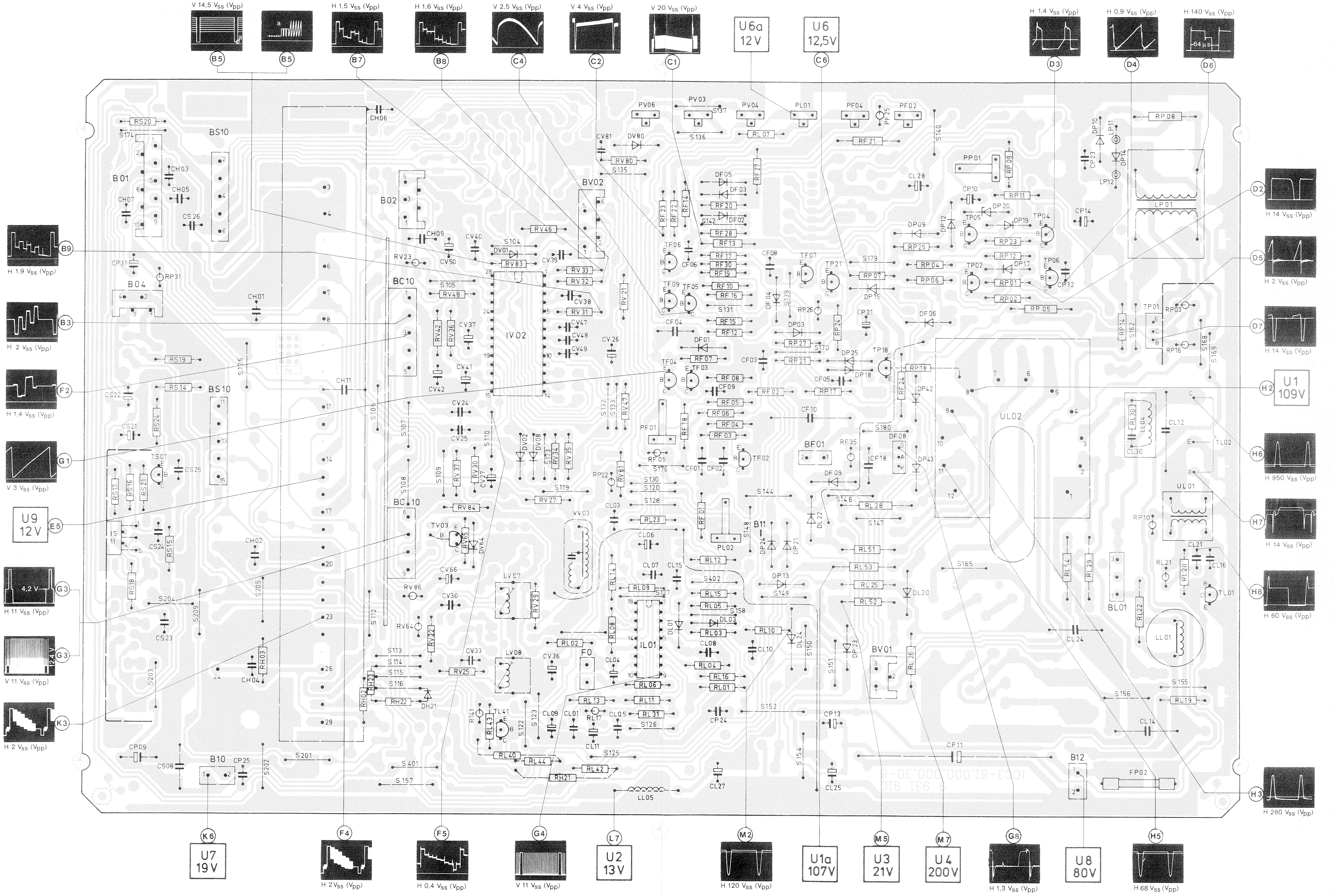

592.802 B
RGB-Endstufe
Output stage
Stadio finale
BV02
R
G
B
* = 50 %
RV52 15k
CV52 100p
DV50
RV53 47k
CV50 330p
RV54 1k2
TV51 BF423
PV50 220k
RV50 220k
RV58 1k5
RV57 1k5
TV52 BF787
Z6 H 50 Vss (Vpp) *
RV62 15k
DV60
RV63 47k
CV60 330p
RV64 1k2
TV61 BF423
RV65 220k
RV66 270k
CV62 68p
RV68 1k5
RV67 1k5
TV62 BF787
Z7 H 60 Vss (Vpp) *
TV81 BC557B
CV81 100µ
RV72 15k
DV70
RV73 47k
CV70 330p
RV74 1k2
TV71 BF423
PV70 220k
RV70 180k
CV72 56p
RV78 1k5
RV77 1k5
TV72 BF787
Z9 H 60 Vss (Vpp) *
BV03
RV94 1k2
CV90 10n
Heizung
Heater
Riscaldamento
CV91 1n
RV82 10
RV83 0,27
CV82 33µ
X bei Bedarf offen
X open in case of need
X aperto in caso di bisogno
BV01
BV04

Oszillogramme Netzteil
Oscillograms power unit
Oscillogrammi sezione di rete



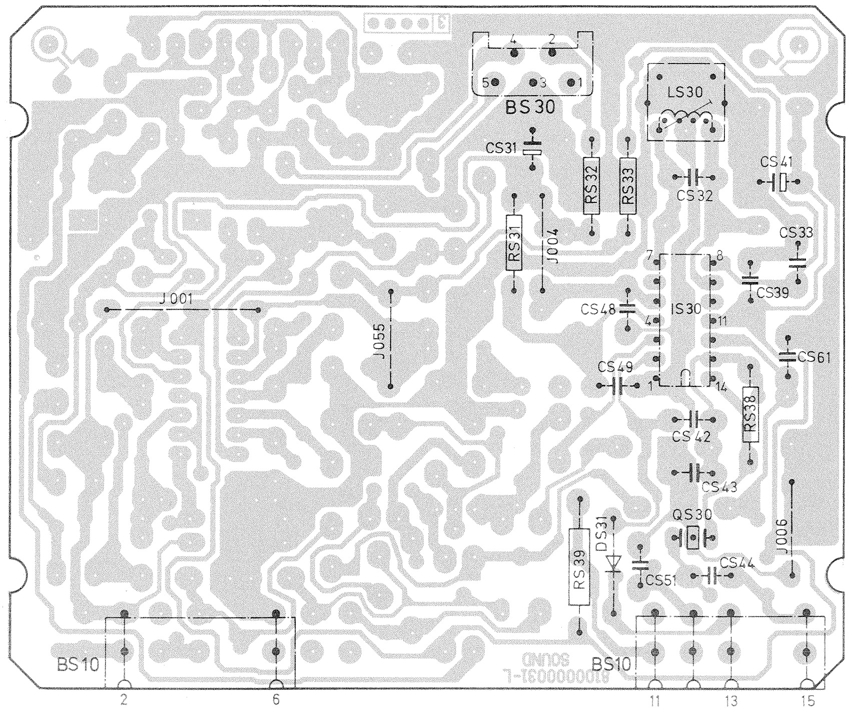

V 14,5 Vss (Vpp)
B5
H 1,5 Vss (Vpp)
B7
H 1,6 Vss (Vpp)
B8
V 2,5 Vss (Vpp)
C4
V 4 Vss (Vpp)
C2
V 20 Vss (Vpp)
C1
B9 H 1,9 Vss (Vpp)
B3 H 2 Vss (Vpp)
F2 H 1,4 Vss (Vpp)
G1 V 3 Vss (Vpp)
U9 12 V E5
4,2 V
G3 H 11 Vss (Vpp)
G3 V 11 Vss (Vpp)
K3 H 2 Vss (Vpp)
BS10
B01
B02
BV02
B04
BC10
IV02
IL01
LV07
LV08
LL05
B10
K6 U7 19 V
F4 H 2 Vss (Vpp)
F5 H 0,4 Vss (Vpp)
G4 V 11 Vss (Vpp)
L7 U2 13 V

Grundplatte – Basic P.C.B. – Pias
Lötseite – Soldered side – Lato sa


V 14,5 Vss (Vpp)
B5
B5
H 1,5 Vss (Vpp)
B7
H 1,6 Vss (Vpp)
B8
V 2,5 Vss (Vpp)
C4
V 4 Vss (Vpp)
C2
V 20 Vss (Vpp)
C1
U6a 12 V
U6 12,5V
C6
H 1,4 Vss (Vpp)
D3
H 0,9 Vss (Vpp)
D4
H 140 Vss (Vpp)
64 µs
D6
B9
H 1,9 Vss (Vpp)
B3
H 2 Vss (Vpp)
F2
H 1,4 Vss (Vpp)
G1
V 3 Vss (Vpp)
U9 12 V
E5
4,2 V
G3
H 11 Vss (Vpp)
24 V
G3
V 11 Vss (Vpp)
K3
H 2 Vss (Vpp)
D2
H 14 Vss (Vpp)
D5
H 2 Vss (Vpp)
D7
H 14 Vss (Vpp)
H2
U1 109V
H6
H 950 Vss (Vpp)
H7
H 14 Vss (Vpp)
H8
H 60 Vss (Vpp)
H3
H 260 Vss (Vpp)
K6
U7 19V
F4
H 2Vss (Vpp)
F5
H 0,4 Vss (Vpp)
G4
V 11 Vss (Vpp)
L7
U2 13V
M2
H 120 Vss (Vpp)
U1a 107V
M5
U3 21V
M7
U4 200V
G8
H 1,3 Vss (Vpp)
U8 80V
H5
H 68 Vss (Vpp)
B01
BS10
B02
BV02
B04
BC10
IV02
UL02
UL01
LP01
IL01
BV01
BL01
B10
B12
B11
BF01
PL02
PF01
LV07
LV08
VV03
LL01
LL05
FP02
F0

Grundplatte – Basic P.C.B. – Piastra di base

Lötseite – Soldered side – Lato saldature


BS 30
LS30
CS31
RS32
RS33
CS41
CS32
CS33
RS31
J004
J001
CS48
IS30
CS39
J055
CS61
CS49
CS42
RS38
CS43
QS30
J006
RS39
DS31
CS51
CS44
BS10
2
6
11
13
15

Ton-ZF-Modul
Sound IF module **592.671**
Modulo FI-tono
Lötseite – Soldered side – Lato saldature

Schaltbildhinweise

Spannungen gemessen mit Instrument Ri ≧ 50 kOhm/V.

Oszillogramme gemessen mit FBAS-Signal an Antenneneingang.

ACHTUNG!

Bildröhre und Ablenksystem sind eine fest verbundene Einheit und vom Werk optimal eingestellt. Folgende Punkte sind unbedingt zu beachten:

Keine Veränderungen an den Halskomponenten vornehmen.

Keine versiegelten Schrauben am Ablenksystem lösen.

Jeglichen Zugriff (Transport) an den Halskomponenten unterlassen.

(D6)

Meßpunkte auf den gedruckten Platinen

NB

nicht brennbarer Widerstand

Sicherheitszeichen

Diese Bauteile sind bei Reparaturen nur durch die vom Hersteller geprüften und angegebenen Originalteile zu ersetzen, um die vorgesehene Betriebssicherheit zu gewährleisten.

Alle nicht gekennzeichneten Dioden 1 N 4148

Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max. 25 kV.

Änderungen vorbehalten.

Circuit notes

Voltage measured with instrument Ri ≧ 50 kOhm/V.

Oscillograms measured with colour bar signal to antenna input.

NOTE!

Cathode ray tube and deflection system are a complete fixed unit which is optimally adjusted at the factory. It is essential that the following points be observed:

Do not alter the position of the neck components.

Do not slaken any sealed screws.

Do not lift or hold the unit by the neck components.

(D6)

Test points on the printed boards

NB

Non-inflammable resistor

Components designated by the safety symbol should, when necessary for repair, only be replaced by original parts produced and proofed by the manufacturer. Only then can the original operational safety be guaranteed.

Diodes not designated all 1 N 4148

The X-ray radiation generated by this receiver is adequately screened. Acceleration voltage: max. 25 kV.

Subject to modification.

Indicazione sullo schema

Tensioni misurate con strumento Ri ≧ 50 kOhm/V.

Oscillogrammi rilevati con segnale a barre di colore all'ingresso d'antenna.

ATTENZIONE!

Il cinescopio ed il giogo di deflessione formono un'unità solidamente collegata e sono regolati in modo ottimo dalla fabbrica. E'indispensabile osservare le istruzioni seguenti:

Effettuare nessuna modificazione sui componenti a collare.

Non togliere delle viti sigillante sul giogo di deflessione.

Per il trasporto mai sollevare l'apparecchio ai componenti a collare.

(D6)

Punti di misura sulle piastre strampate

NB

Resistenza non infiammabile.

Contrassegno di sicurezza

Nel caso di riparazione questi elementi devono venire sostituito soltanto per delle parti di ricambio originali controllati e designati da parte del fabbricante per garantire la sicurezza di funzionamento prevista.

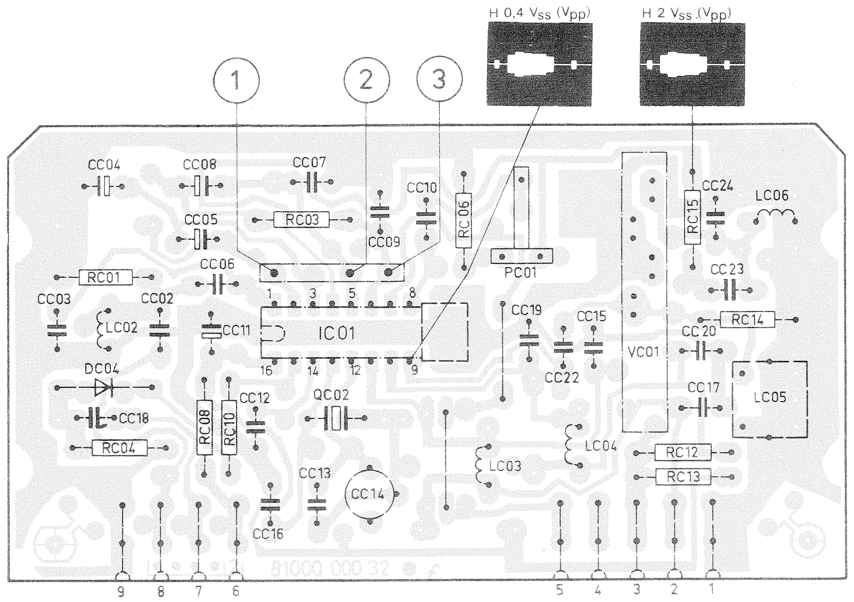
Tutti i diodi non contressegnati 1 N 4148

Le radiazioni X generatore in questo televisore sono sufficientemente schermate. Tensione di accelerazione: max. 25 kV.

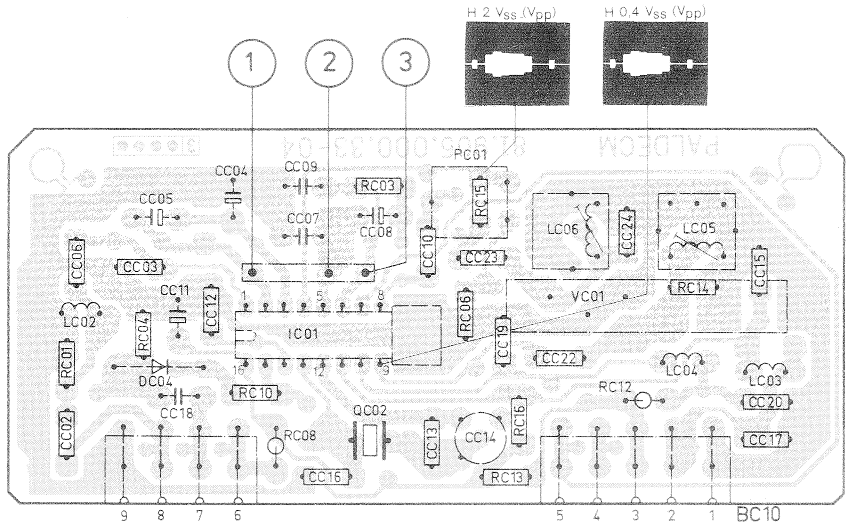
Con riserva di modifiche.

SC 1430
Color 1530

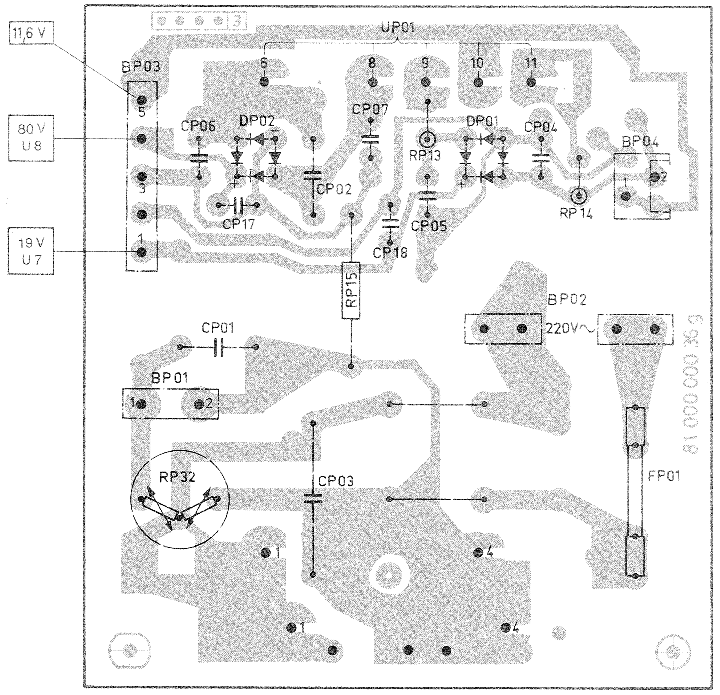
NORDMENDE Chassis F 10 783.503.B 00 72


H 0,4 Vss (Vpp)
H 2 Vss (Vpp)
1
2
3
CC04
CC08
CC07
CC10
RC06
RC15
CC24
LC06
CC05
RC03
CC09
PC01
RC01
CC06
CC23
CC03
CC02
LC02
CC11
IC01
CC19
CC15
RC14
VC01
CC20
CC22
DC04
CC12
QC02
CC17
LC05
CC18
RC08
RC10
RC04
LC04
LC03
RC12
RC13
CC13
CC14
CC16
9
8
7
6
5
4
3
2
1

PAL-Decoder
Decoder PAL
592.651
Lötseite – Soldered side – Lato saldature


H 2 Vss (Vpp)
H 0,4 Vss (Vpp)
1
2
3
PC01
CC04
CC09
RC03
RC15
CC05
CC07
CC08
LC06
CC24
LC05
CC06
CC03
CC10
CC23
CC11
CC12
RC06
VC01
RC14
CC15
LC02
RC04
IC01
CC19
RC01
CC22
LC04
LC03
DC04
RC10
RC12
CC20
CC18
CC02
QC02
RC08
CC13
CC14
RC16
CC17
CC16
RC13
9
8
7
6
5
4
3
2
1
BC10

PAL-Decoder
Decoder PAL (MELF)
592.675
Lötseite – Soldered side – Lato saldature


11,6 V
UP01
BP03
80 V
U8
19 V
U7
CP06
DP02
CP07
DP01
CP04
BP04
RP13
CP02
CP05
RP14
CP17
CP18
RP15
BP02
220V~
CP01
BP01
RP32
CP03
FP01

Leiterplatte Netzteil
P.C.B. Power unit
Piastra di rete
592.620
Lötseite – Soldered side – Lato saldature

Modulliste
Module List
Lista moduli

Pos.	Art.-Nr. Part. No. No. artic
–	783.583.
–	276.005
P	592.620
H	276.196
S	592.671
C	592.651
V	592.802.
–	784.580.
–	276.661
P	592.620
H	276.196
S	592.671
C	592.675
V	592.802.

Änderungen vorbehalten ·

ento Ri ≥

le a barre di

ione formono
no regolati in
pensabile os-

sui compo-

giogo di de-

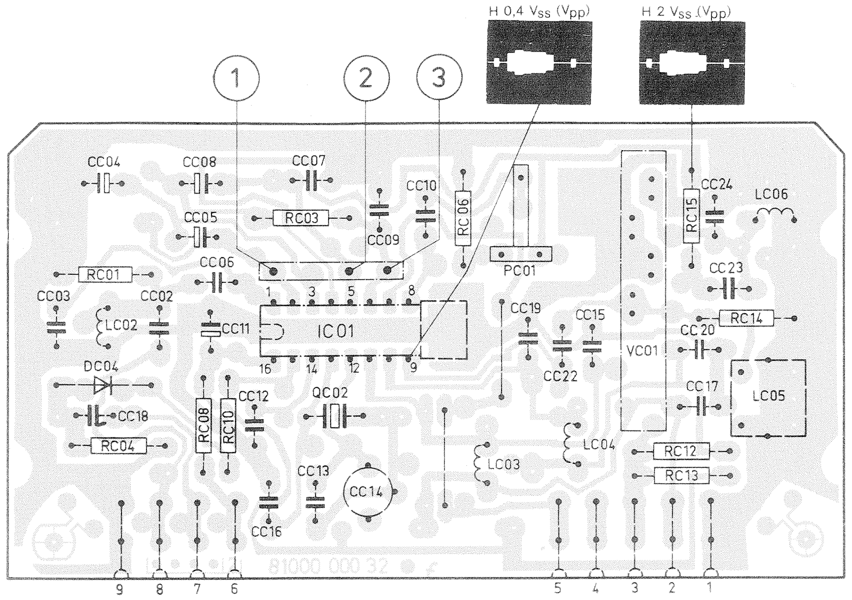
parecchio ai

pate

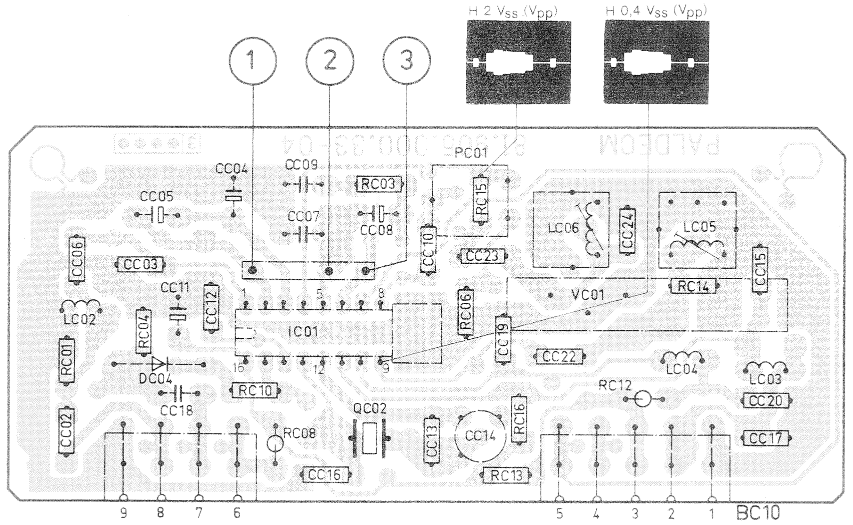
menti devono
parti di ricam-
da parte del
zza di funzio-

N 4148

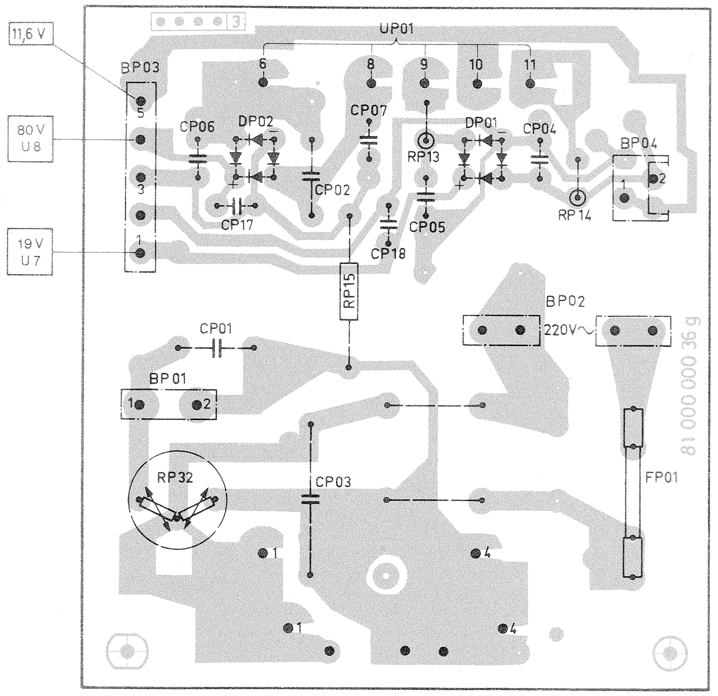
sto televisore
Tensione di


H 0,4 Vss (Vpp)
H 2 Vss (Vpp)
①
②
③
CC04
CC08
CC07
CC10
RC06
CC05
RC03
CC09
PC01
RC15
CC24
LC06
CC06
CC23
RC01
CC03
CC02
LC02
CC11
IC01
CC19
CC15
RC14
CC20
VC01
CC22
DC04
CC12
QC02
CC17
LC05
CC18
RC08
RC10
RC04
LC03
LC04
RC12
RC13
CC13
CC14
CC16
81000 000 32
9
8
7
6
5
4
3
2
1

PAL-Decoder
Decoder PAL
592.651
Lötseite – Soldered side – Lato saldature


H 2 Vss (Vpp)
H 0,4 Vss (Vpp)
①
②
③
PC01
CC04
CC09
RC03
CC05
CC07
CC08
RC15
LC06
CC24
LC05
CC06
CC03
CC10
CC23
CC11
CC12
RC04
LC02
IC01
RC06
VC01
RC14
CC15
RC01
DC04
RC10
CC19
CC22
LC04
LC03
RC12
CC20
CC18
QC02
CC02
RC08
CC13
CC14
RC16
CC17
CC16
RC13
9
8
7
6
5
4
3
2
1
BC10

PAL-Decoder
Decoder PAL (MELF)
592.675
Lötseite – Soldered side – Lato saldature


11,6 V
80 V
U8
19 V
U7
UP01
BP03
6
8
9
10
11
CP06
DP02
CP07
DP01
CP04
BP04
RP13
CP02
CP17
CP05
RP14
CP18
RP15
BP02
220V~
CP01
BP01
RP32
CP03
FP01
81 000 000 36 g

Leiterplatte Netzteil
P.C.B. Power unit
Piastra di rete
592.620
Lötseite – Soldered side – Lato saldature

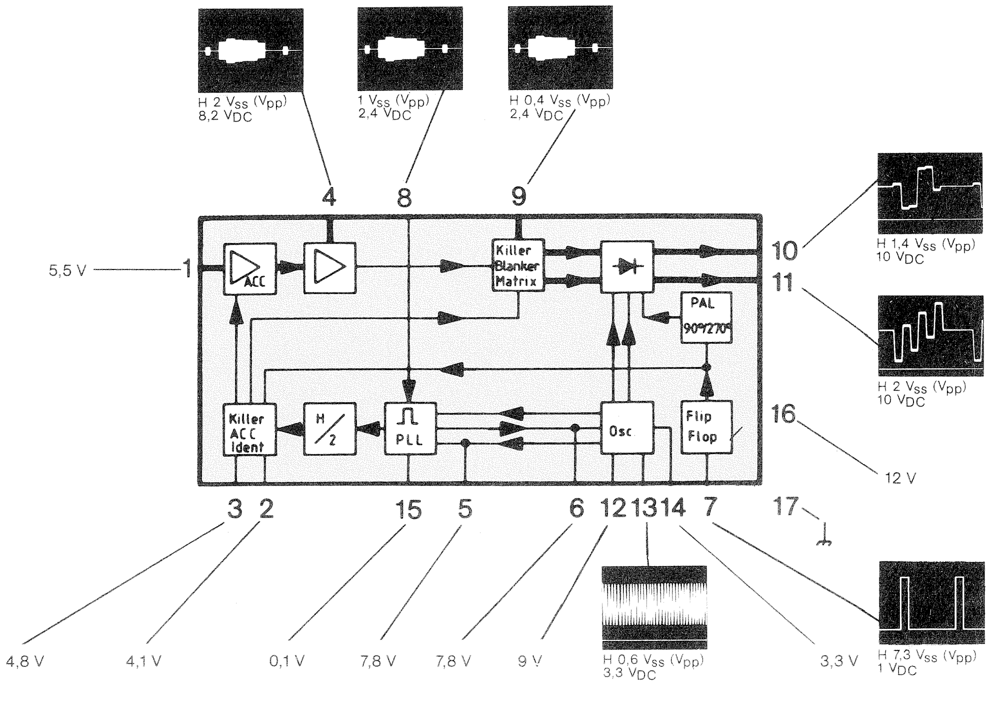
Modulliste
Module List
Lista moduli

Pos.	Art.-Nr. Part. No. No. articolo	Bezeichnung	Part	Descrizione
		SC 1430 983.519 A		
		Bedienteil-Module:	**Control unit modules:**	**Moduli sez. comandi:**
–	783.583.A 00	1)Bedienteil, 8fach	1)Control unit, 8-fold	1)Sezione comandi, 8 volte
–	276.005	Leiterplatte, kpl., Tastenspeicher	P.C.B., cpl., storage unit	Piastra, cpl., unità d'immagazz.
P	592.620	Leiterplatte, kpl., Netzteil	P.C.B., cpl., power supply	Piastra, cpl., di rete
		Chassis-Module:	**Chassis modules:**	**Telaio del moduli:**
H	276.196	HF-Block, kpl., (MTS 2000 A)	RF block, cpl., (MTS 2000 A)	Modulo AF, cpl., (MTS 2000 A)
S	592.671	Ton-ZF-Modul	Sound-IF module	Modulo IF-audio
C	592.651	PAL-Decoder-Modul	PAL-decoder module	Modulo PAL-decoder
V	592.802.B	Bildrohranschluß-Platine, kpl.	P.C.B., cpl., CRT socket	Piastra zoccolo cinescopio, cpl.,
		Color 1530 984.519 J		
		Bedienteil-Module:	**Control unit modules:**	**Moduli sez. comandi:**
–	784.580.A 00	1)Bedienteil, 16fach	1)Control unit, 16-fold	1)Sezione comandi, 16 volte
–	276.661	Leiterplatte, kpl., Tastenspeicher	P.C.B., cpl., storage unit	Piastra, cpl., unità d'immagazz.
P	592.620	Leiterplatte, kpl., Netzteil	P.C.B., cpl., power supply	Piastra, cpl., di rete
		Chassis-Module:	**Chassis modules:**	**Telaio del moduli:**
H	276.196	HF-Block, kpl., (MTS 2000 A)	RF block, cpl., (MTS 2000 A)	Modulo AF, cpl., (MTS 2000 A)
S	592.671	Ton-ZF-Modul	Sound-IF module	Modulo IF-audio
C	592.675	PAL-Decoder-Modul (MELF)	PAL-decoder module (MELF)	Modulo PAL-decoder (MELF)
V	592.802.B	Bildrohranschluß-Platine, kpl.	P.C.B., cpl., CRT socket	Piastra zoccolo cinescopio, cpl.
		1)wird nicht komplett geliefert	1)not supplied as a complete unit	1)non viene fernito completo
		Service-Hinweis	**Service Note**	**Istruzione per il servizio assistenza**
		Bei Ersatzteilbestellungen bitte unbedingt die Ersatzteilnummer angeben. Vollständige Ersatzteillisten befinden sich auf Microfilm.	When ordering spare parts it is absolutely essential that the spare part no. be given. Complete spare parts lists can be taken from microfilm.	Per la consegna di parti di ricambio si pregha di indicare il numero della parte di ricambio. Liste parti ricambio complete si trovono su microfilm.

NORDMENDE

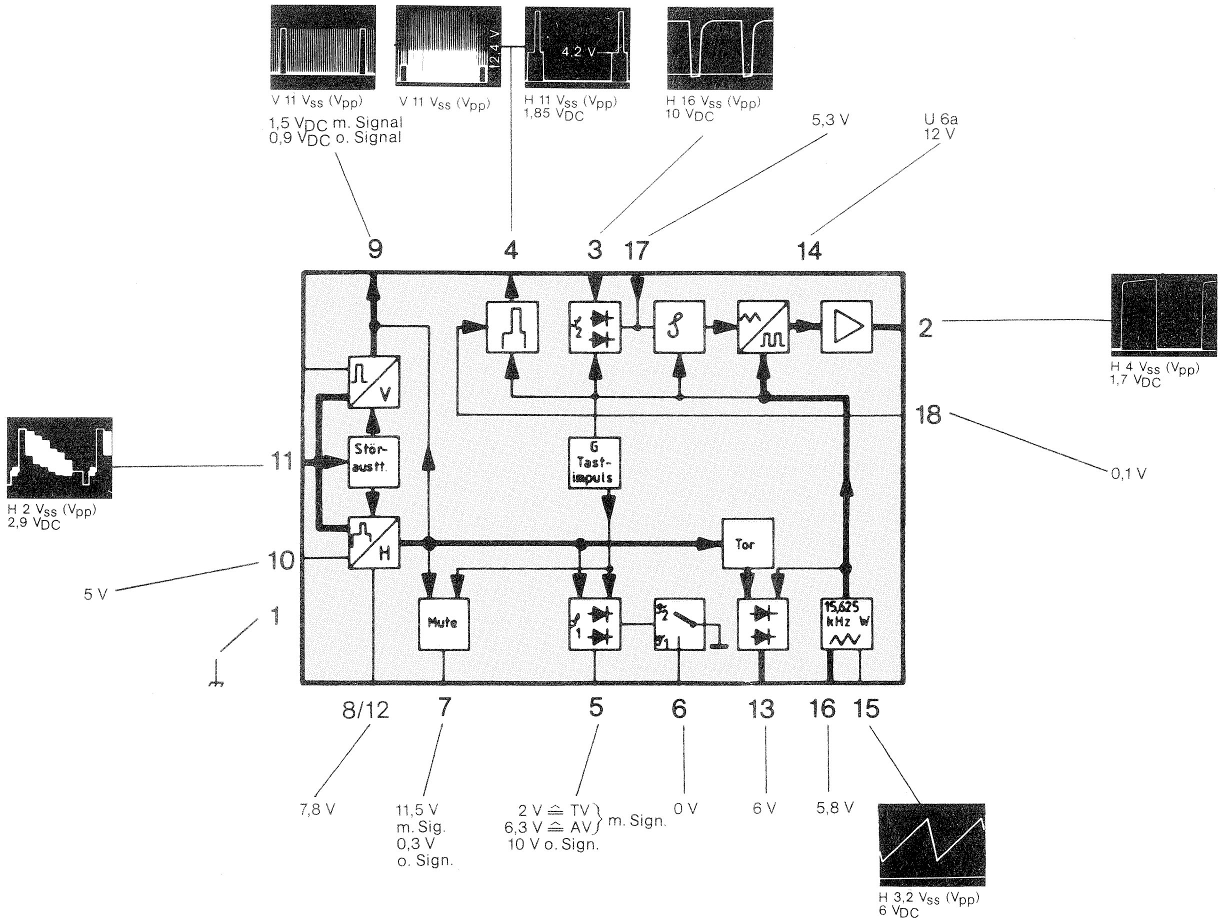
Blockschaltbilder - Block diagrams - Schema a blocchi

IC 01 AN 5620 X

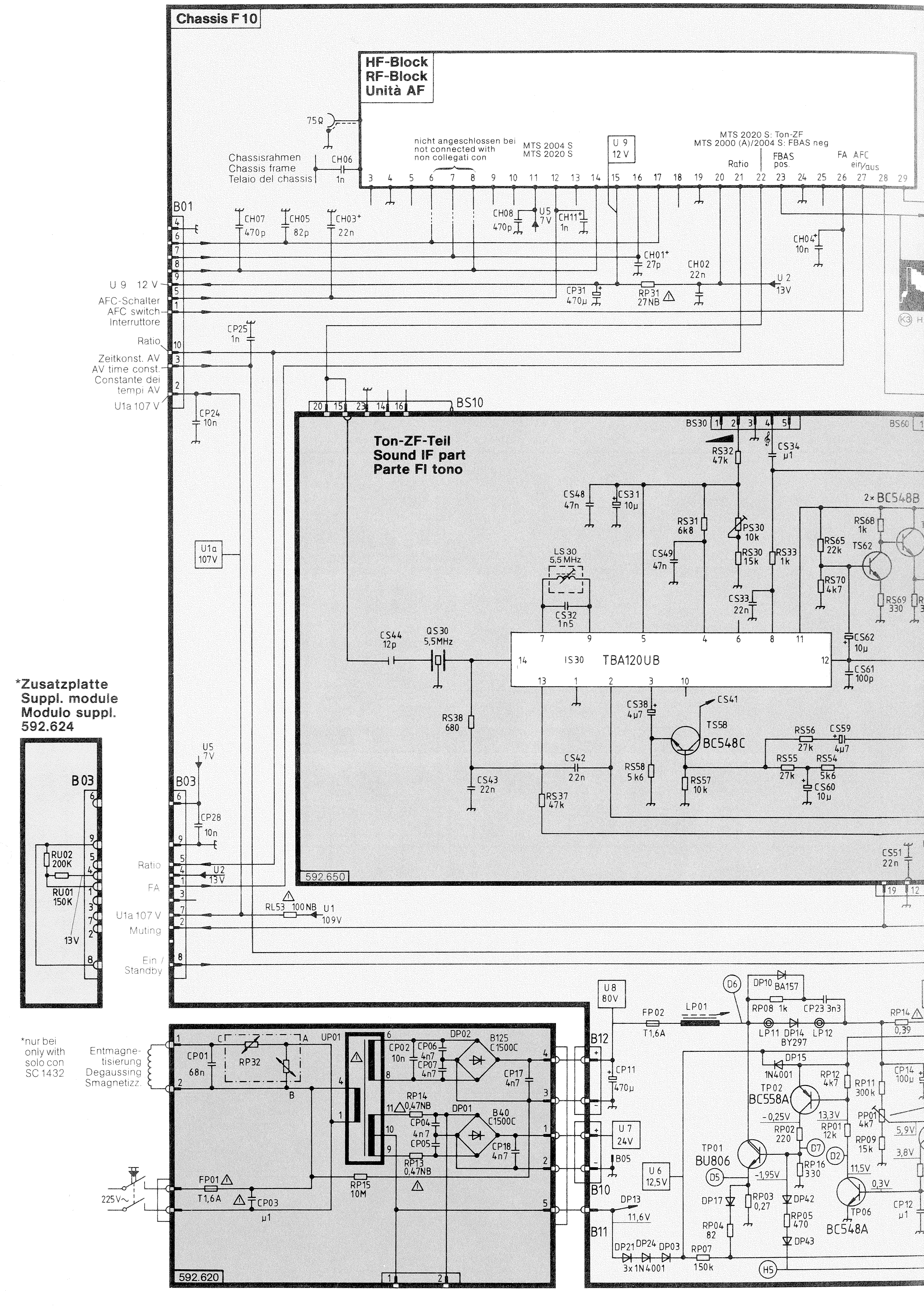


H 2 Vss (Vpp) 8,2 VDC
1 Vss (Vpp) 2,4 VDC
H 0,4 Vss (Vpp) 2,4 VDC
4
8
9
5,5 V
1
ACC
Killer Blanker Matrix
PAL 90°/270°
Killer ACC Ident
H/2
PLL
Osc
Flip Flop
10
11
16
17
H 1,4 Vss (Vpp) 10 VDC
H 2 Vss (Vpp) 10 VDC
12 V
3 2
15 5
6 12 13 14 7
4,8 V
4,1 V
0,1 V
7,8 V
7,8 V
9 V
H 0,6 Vss (Vpp) 3,3 VDC
3,3 V
H 7,3 Vss (Vpp) 1 VDC

IL 01 TDA 1950

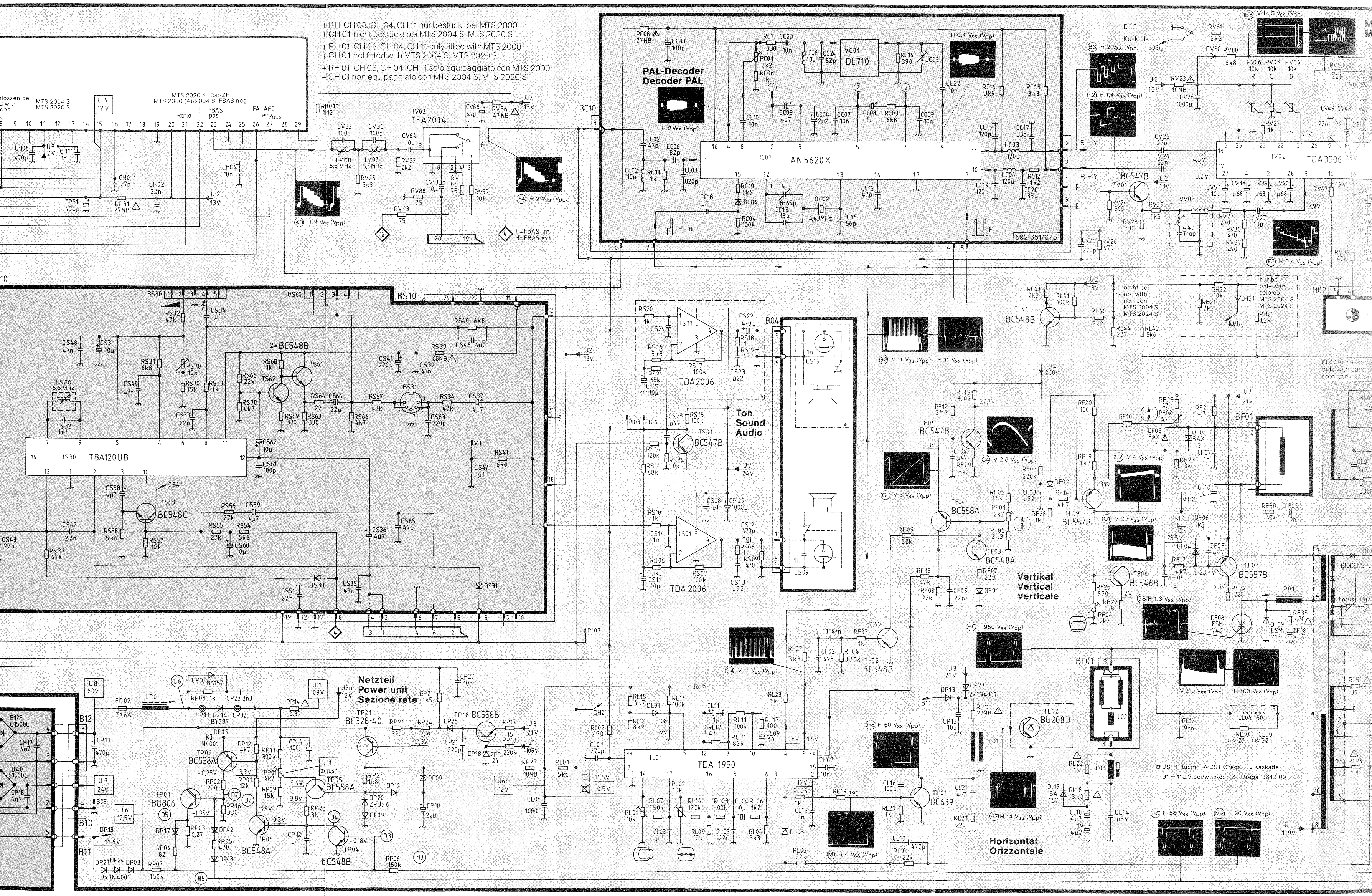


V 11 Vss (Vpp)
1,5 VDC m. Signal
0,9 VDC o. Signal
V 11 Vss (Vpp)
12,4 V
4,2 V
H 11 Vss (Vpp) 1,85 VDC
H 16 Vss (Vpp) 10 VDC
5,3 V
U 6a 12 V
9
4
3 17
14
2
18
H 4 Vss (Vpp) 1,7 VDC
0,1 V
11
10
1
H 2 Vss (Vpp) 2,9 VDC
5 V
V
Stör-austt.
H
G Tast-impuls
Tor
Mute
15,625 kHz W
8/12
7
5
6
13
16 15
7,8 V
11,5 V m. Sig. 0,3 V o. Sign.
2 V ≙ TV
6,3 V ≙ AV
m. Sign.
10 V o. Sign.
0 V
6 V
5,8 V
H 3,2 Vss (Vpp) 6 VDC



Chassis F 10
HF-Block
RF-Block
Unità AF
75Ω
Chassisrahmen
Chassis frame
Telaio del chassis
CH06 1n
nicht angeschlossen bei
not connected with
non collegati con
MTS 2004 S
MTS 2020 S
U 9 12 V
MTS 2020 S: Ton-ZF
MTS 2000 (A)/2004 S: FBAS neg
Ratio
FBAS pos.
FA AFC ein/aus
B01
CH07 470p
CH05 82p
CH03* 22n
CH08 470p
U5 7V
CH11* 1n
CH01* 27p
CH02 22n
CP31 470µ
RP31 27NB
U 2 13V
CH04* 10n
U 9 12 V
AFC-Schalter
AFC switch
Interruttore
Ratio
Zeitkonst. AV
AV time const.
Constante dei tempi AV
U1a 107 V
CP25 1n
CP24 10n
BS10
Ton-ZF-Teil
Sound IF part
Parte FI tono
BS30
BS60
RS32 47k
CS34 µ1
CS48 47n
CS31 10µ
RS31 6k8
PS30 10k
RS30 15k
RS33 1k
2×BC548B
RS68 1k
RS65 22k
TS62
RS70 4k7
RS69 330
LS30 5,5 MHz
CS49 47n
CS33 22n
CS32 1n5
CS62 10µ
CS44 12p
QS30 5,5MHz
IS30 TBA120UB
CS61 100p
RS38 680
CS38 4µ7
CS41
TS58 BC548C
RS56 27k
CS59 4µ7
RS55 27k
RS54 5k6
CS60 10µ
CS42 22n
RS58 5k6
RS57 10k
CS43 22n
RS37 47k
U1a 107V
592.650
*Zusatzplatte
Suppl. module
Modulo suppl.
592.624
B03
RU02 200K
RU01 150K
13V
U5 7V
CP28 10n
Ratio
FA
U2 13V
U1a 107 V
Muting
RL53 100NB
U1 109V
Ein / Standby
CS51 22n
U8 80V
FP02 T1,6A
LP01
DP10 BA157
RP08 1k
CP23 3n3
RP14
LP11 DP14 LP12 BY297
*nur bei only with solo con SC 1432
Entmagnetisierung
Degaussing
Smagnetizz.
CP01 68n
RP32
UP01
CP02 10n
CP06 4n7
CP07 4n7
DP02
B125 C1500C
CP17 4n7
RP14 0,47NB
CP04 4n7
CP05
DP01
B40 C1500C
CP18 4n7
RP13 0,47NB
FP01 T1,6A
CP03 µ1
RP15 10M
225V~
592.620
B12
CP11 470µ
U 7 24V
B05
U 6 12,5V
B10
B11
DP13
11,6V
DP21 DP24 DP03
3x1N4001
DP15 1N4001
TP02 BC558A
RP12 4k7
RP11 300k
CP14 100µ
-0,25V
RP02 220
RP01 12k
13,3V
PP01 4k7
RP09 15k
5,9V
3,8V
TP01 BU806
-1,95V
RP16 330
11,5V
0,3V
DP17
RP03 0,27
DP42
RP05 470
DP43
TP06 BC548A
CP12 µ1
RP04 82
RP07 150k

+ RH, CH 03, CH 04, CH 11 nur bestückt bei MTS 2000
+ CH 01 nicht bestückt bei MTS 2004 S, MTS 2020 S
+ RH 01, CH 03, CH 04, CH 11 only fitted with MTS 2000
+ CH 01 not fitted with MTS 2004 S, MTS 2020 S
+ RH 01, CH 03, CH 04, CH 11 solo equipaggiato con MTS 2000
+ CH 01 non equipaggiato con MTS 2004 S, MTS 2020 S



PAL-Decoder
Decoder PAL
AN5620X
IC01
DL710
VC01
592.651/675
TEA2014
IV03
TDA3506
IV02
BC10
MTS 2020 S: Ton-ZF
MTS 2000 (A)/2004 S: FBAS neg
MTS 2004 S
MTS 2020 S
Ratio
FBAS pos.
FA AFC ein/aus
L=FBAS int
H=FBAS ext
DST
Kaskade
BS10
TBA120UB
IS30
2×BC548B
BC548C
LS30 5,5 MHz
TDA2006
TDA 2006
Ton
Sound
Audio
BC547B
BC548B
nicht bei
not with
non con
MTS 2004 S
MTS 2024 S
nur bei
only with
solo con
MTS 2004 S
MTS 2024 S
Vertikal
Vertical
Verticale
BC558A
BC548A
BC557B
BC546B
BF01
Netzteil
Power unit
Sezione rete
BU806
BC328-40
BC558B
TDA 1950
IL01
BC639
BU208D
BL01
Horizontal
Orizzontale
U1 = 112 V bei/with/con ZT Orega 3642-00
□ DST Hitachi ◇ DST Orega ∘ Kaskade

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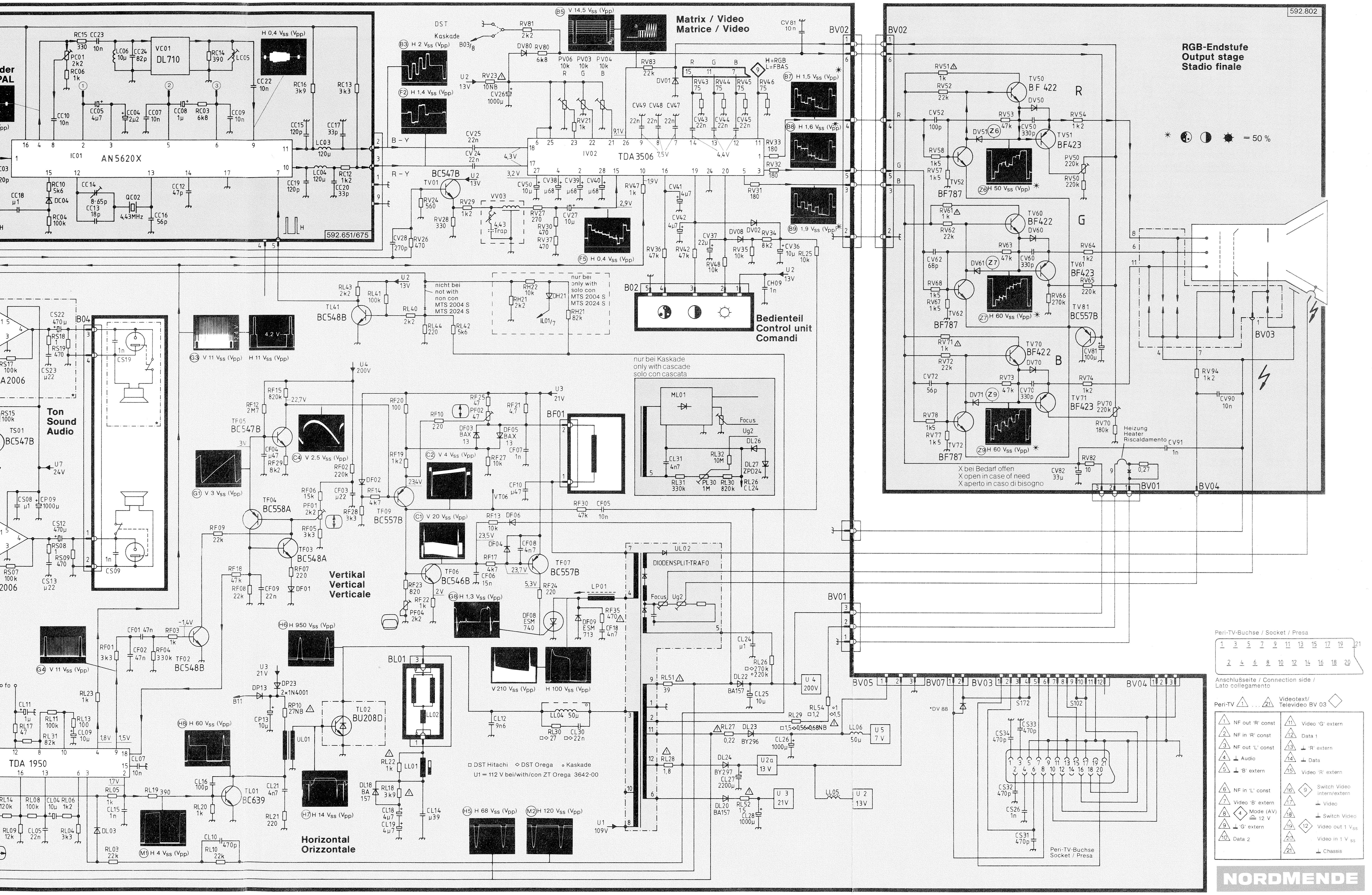
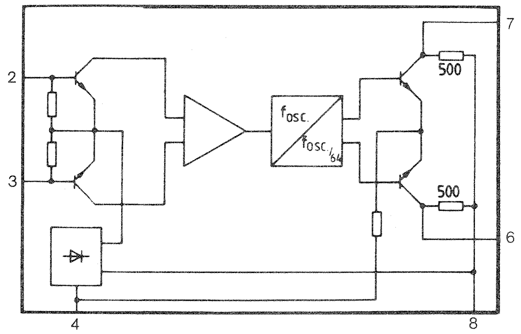
* nicht in allen Geräten vorhanden
not fitted to all models
non esistente in ogni modello


592.651/675
592.802
AN5620X
IC01
DL710
VC01
TDA 3506
IV02
Matrix / Video
Matrice / Video
RGB-Endstufe
Output stage
Stadio finale
R
G
B
= 50 %
BF422
BF423
BF787
BC557B
BV01
BV02
BV03
BV04
BV05
BV07
B02
Bedienteil
Control unit
Comandi
nur bei Kaskade
only with cascade
solo con cascata
Focus
Ug2
nicht bei
not with
non con
MTS 2004 S
MTS 2024 S
nur bei
only with
solo con
MTS 2004 S
MTS 2024 S
Ton
Sound
Audio
Vertikal
Vertikale
Verticale
Horizontal
Orizzontale
DIODENSPLIT-TRAFO
UL02
BU208D
TDA 1950
BC639
BC548A
BC548B
BC558A
BC546B
BC547B
Heizung
Heater
Riscaldamento
X bei Bedarf offen
X open in case of need
X aperto in caso di bisogno
□ DST Hitachi ◇ DST Orega ∘ Kaskade
U1 = 112 V bei/with/con ZT Orega 3642-00
Peri-TV-Buchse / Socket / Presa
Anschlußseite / Connection side / Lato collegamento
Peri-TV
Videotext/ Televideo BV 03
NF out 'R' const
NF in 'R' const
NF out 'L' const
Audio
'B' extern
NF in 'L' const
Video 'B' extern
Mode (AV) 12 V
'G' extern
Data 2
Video 'G' extern
Data 1
'R' extern
Data
Video 'R' extern
Switch Video intern/extern
Video
Switch Video
Video out 1 Vss
Video in 1 Vss
Chassis
Peri-TV-Buchse Socket / Presa
NORDMENDE

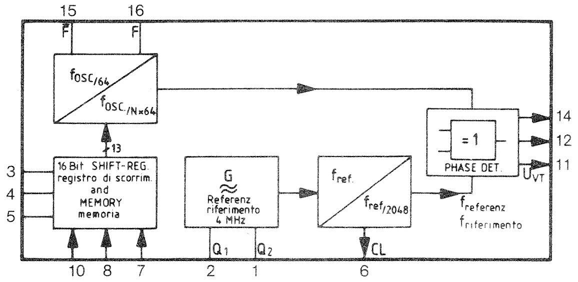
* nicht in allen Geräten vorhanden
not fitted to all models
non esistente in ogni modello

I 202 SDA 2101



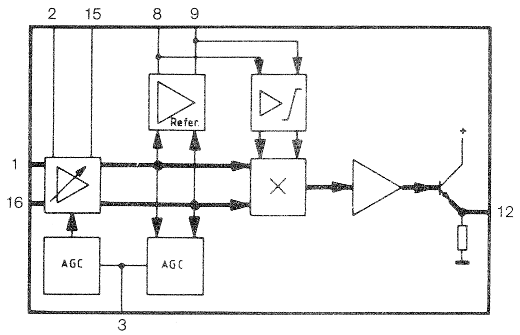
2
3
4
6
7
8
f_osc
f_osc/64
500
500

I 215 SDA 2002



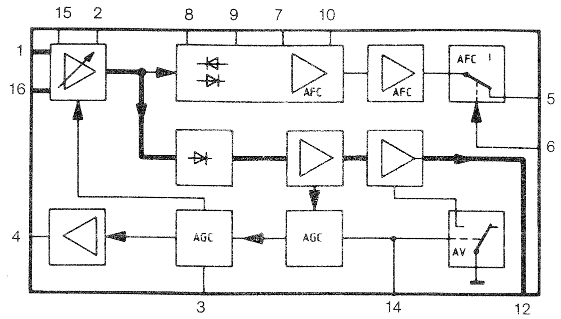
15
16
F
F
f_osc/64
f_osc/N×64
13
16 Bit SHIFT-REG registro di scorrim. and MEMORY memoria
3
4
5
G
Referenz riferimento 4 MHz
f_ref
f_ref/2048
f_referenz f_riferimento
=1
PHASE DET
14
12
11
U_VT
10
8
7
Q1
Q2
2
1
CL
6

I 302 TDA 2545



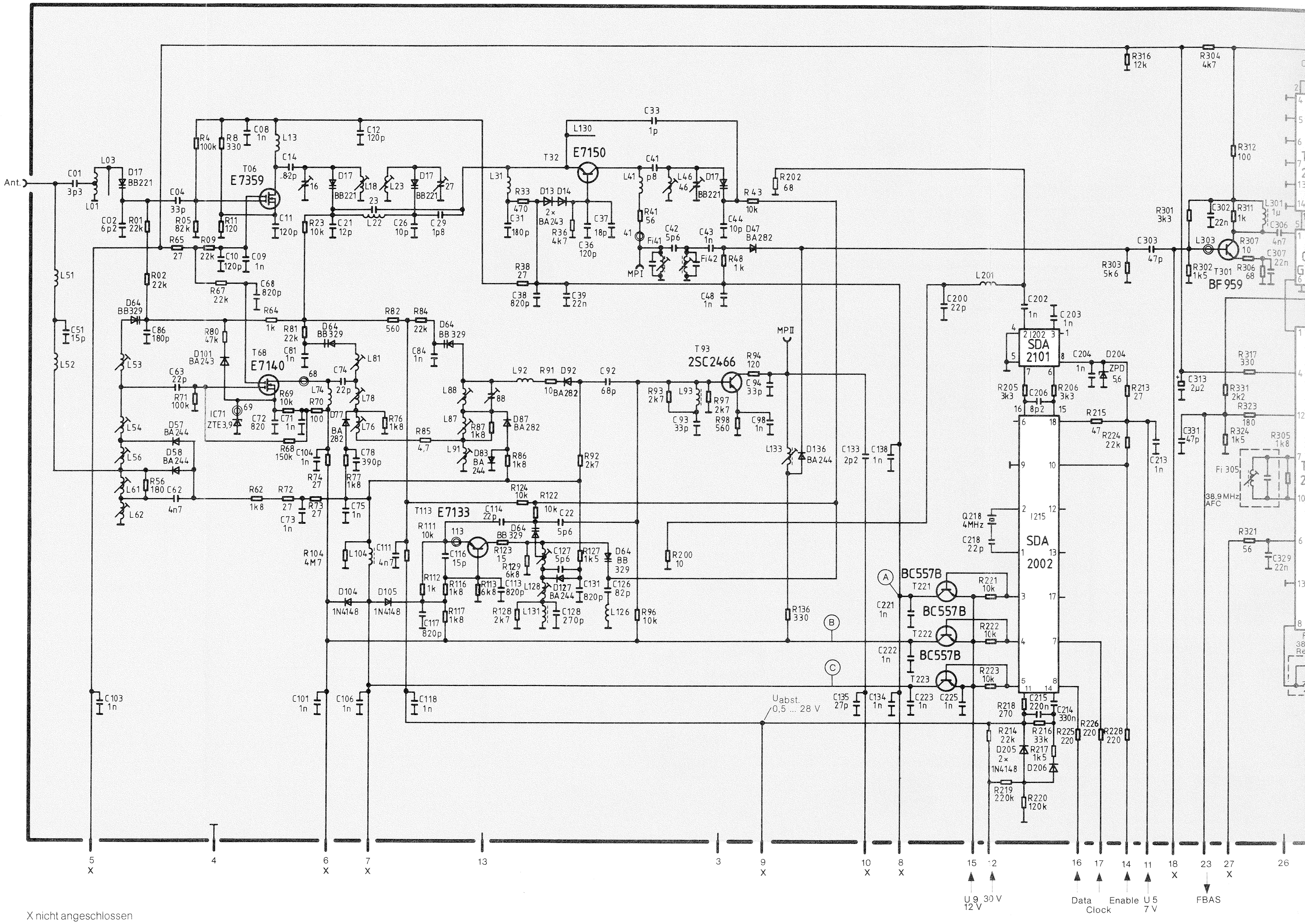
2
15
8
9
Refer
1
16
AGC
AGC
3
12

I 301 TDA 2541



15
2
8
9
7
10
1
16
AFC
AFC
AFC
5
6
AGC
AGC
AV
4
3
14
12

HF-Block
RF block
Unità AF
MTS 2020 S 563.796

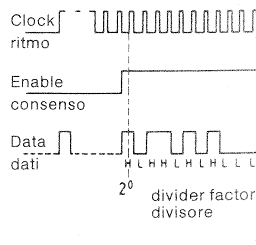


Ant.
E7359
E7140
E7150
E7133
2SC2466
SDA 2101
SDA 2002
BC557B
BF959
MPI
MPII
Uabst. 0,5 ... 28 V
5 X
4
6 X
7 X
13
3
9 X
10 X
8 X
15
12
16
17
14
11
18 X
23
27 X
26
U 9 12 V
30 V
Data
Clock
Enable
U 5 7 V
FBAS

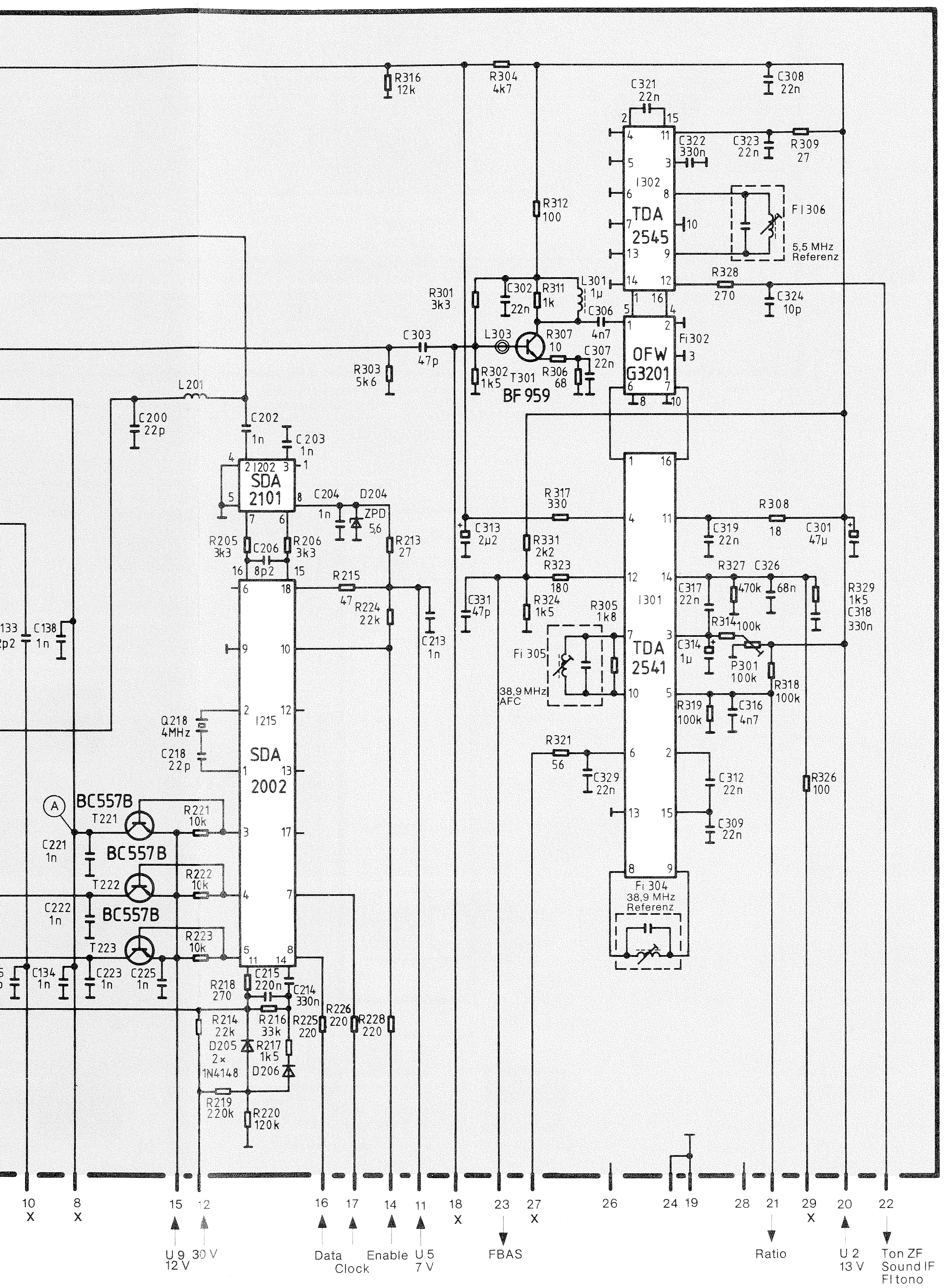
X nicht angeschlossen
X not connected
X non collegate

Bandumschaltung
Band switch
Commutazione di banda

Ⓐ	Ⓑ	Ⓒ	
L	H	L	Band I
L	H	H	Band III
H	L	L	Band IV/V

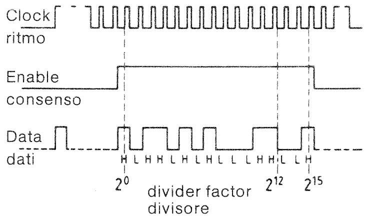


Clock
ritmo
Enable
consenso
Data
dati
H L H H L H L L L
2⁰
divider factor
divisore

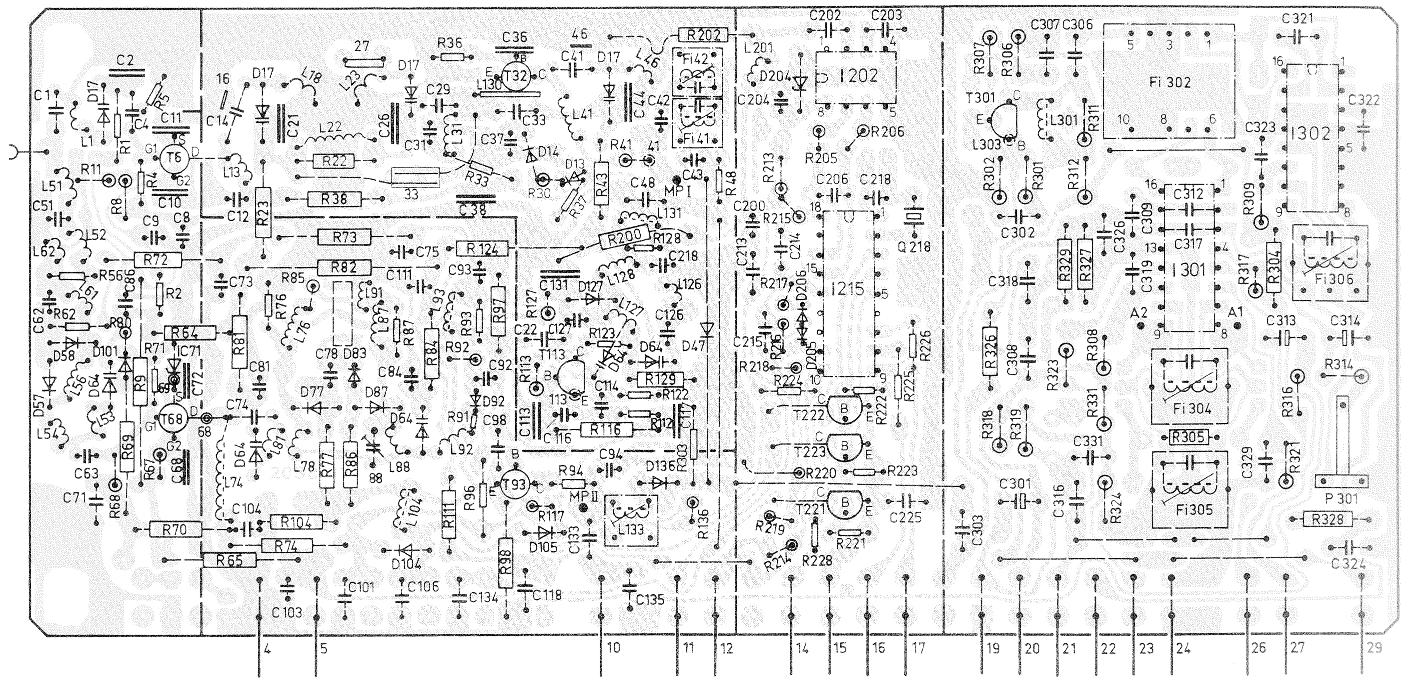

R316 12k
R304 4k7
C321 22n
C308 22n
C322 330n
C323 22n
R309 27
I302
TDA 2545
Fi306
5,5 MHz Referenz
R312 100
R301 3k3
C302 22n
R311 1k
L301 1µ
C306 4n7
R328 270
C324 10p
C303 47p
L303
R307 10
C307 22n
OFW G3201
Fi302
R303 5k6
R302 1k5
T301
R306 68
BF 959
L201
C200 22p
C202 1n
C203 1n
I202
SDA 2101
C204 1n
D204 ZPD 5,6
R205 3k3
C206 8p2
R206 3k3
R213 27
R317 330
R308 18
C313 2µ2
R331 2k2
C319 22n
C301 47µ
R323 180
R327 470k
C326 68n
C317 22n
R329 1k5
C318 330n
R215 47
R224 22k
C213 1n
C331 47p
R324 1k5
R305 1k8
I301
TDA 2541
Fi 305
38,9 MHz AFC
C314 1µ
R314 100k
P301 100k
R318 100k
R319 100k
C316 4n7
Q218 4MHz
C218 22p
I215
SDA 2002
R321 56
C329 22n
C312 22n
C309 22n
R326 100
A
BC557B
T221
R221 10k
C221 1n
BC557B
T222
R222 10k
C222 1n
BC557B
T223
R223 10k
Fi 304 38,9 MHz Referenz
C134 1n
C223 1n
C225 1n
C215 220n
C214 330n
R218 270
R214 22k
R216 33k
R225 220
R226 220
R228 220
D205 2x 1N4148
R217 1k5
D206
R219 220k
R220 120k
10
8
15
12
16
17
14
11
18
23
27
26
24
19
28
21
29
20
22
x
U 9 12 V
30 V
Data
Clock
Enable
U 5 7 V
FBAS
Ratio
U 2 13 V
Ton ZF Sound IF FI tono

nschaltung
witch
tazione di banda

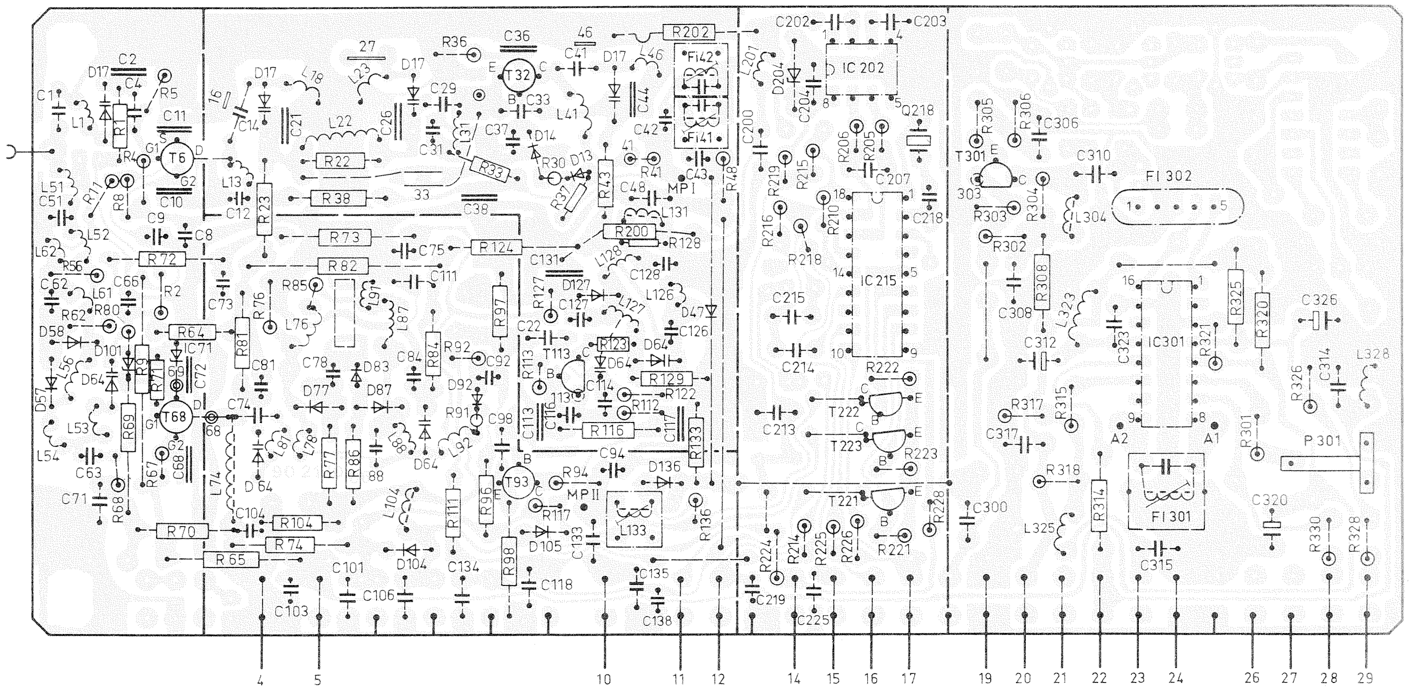
Ⓑ	Ⓒ	
H	L	Band I
H	H	Band III
L	L	Band IV/V


Clock
ritmo
Enable
consenso
Data
dati
H L H H L H L H L L L H H L L H
2^0
divider factor
divisore
2^{12}
2^{15}

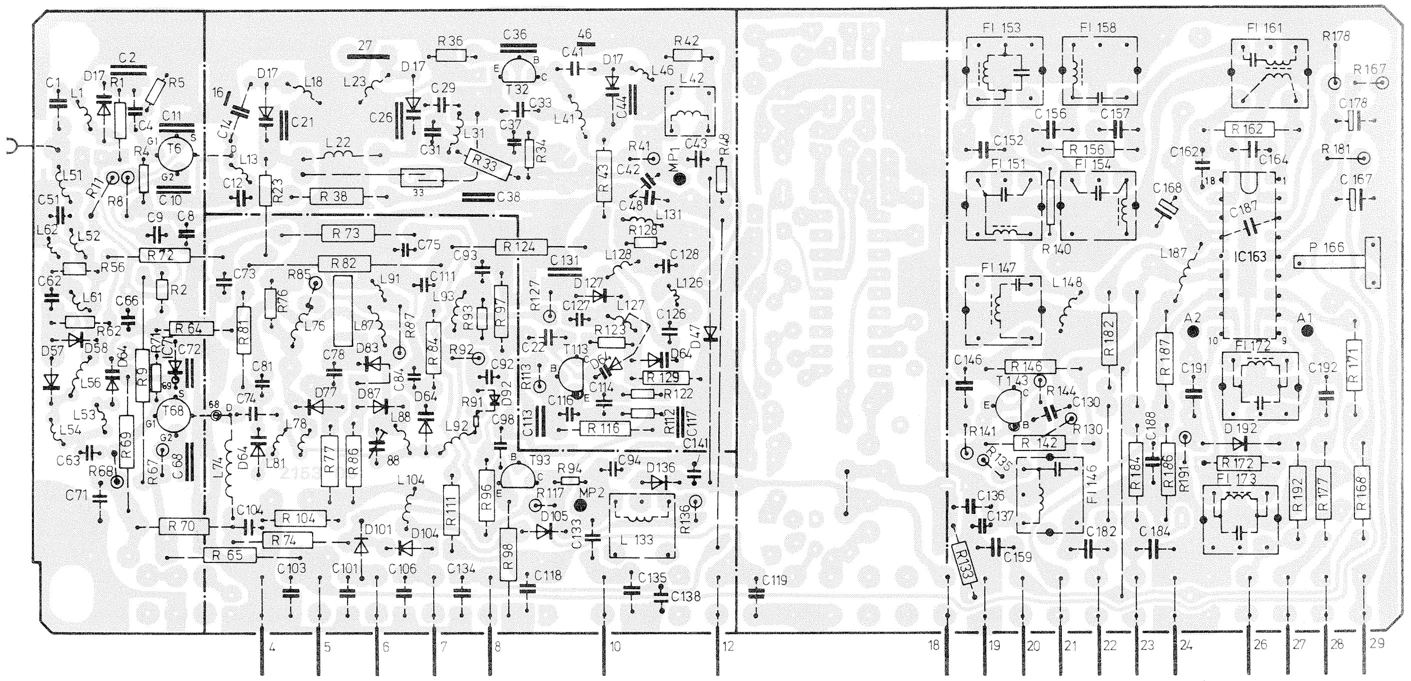
Leiterplatte HF-Block
P.C.B. RF block
Piastra Unità AF
MTS 2020 S 563.796
Lötseite – Soldered side – Lato saldature

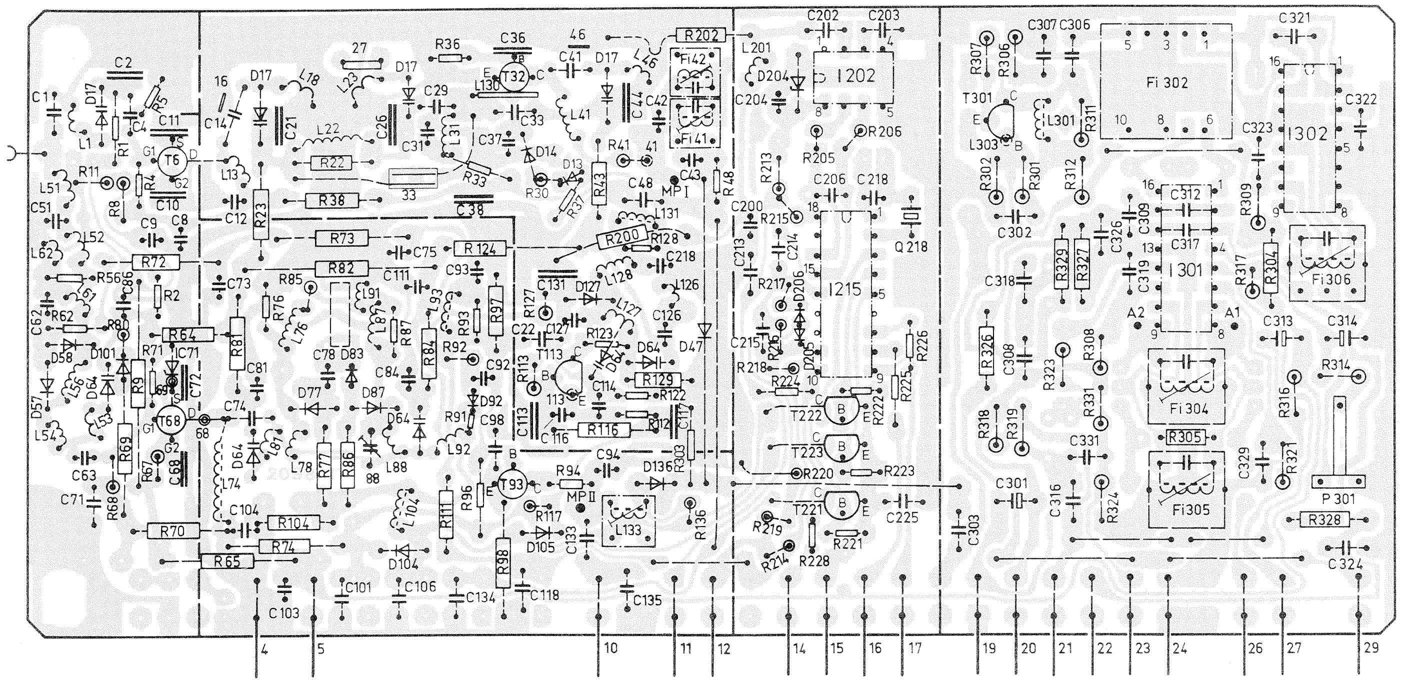


Leiterplatte HF-Block
P.C.B. RF block
Piastra Unità AF
MTS 2004 563.799
Lötseite – Soldered side – Lato saldature

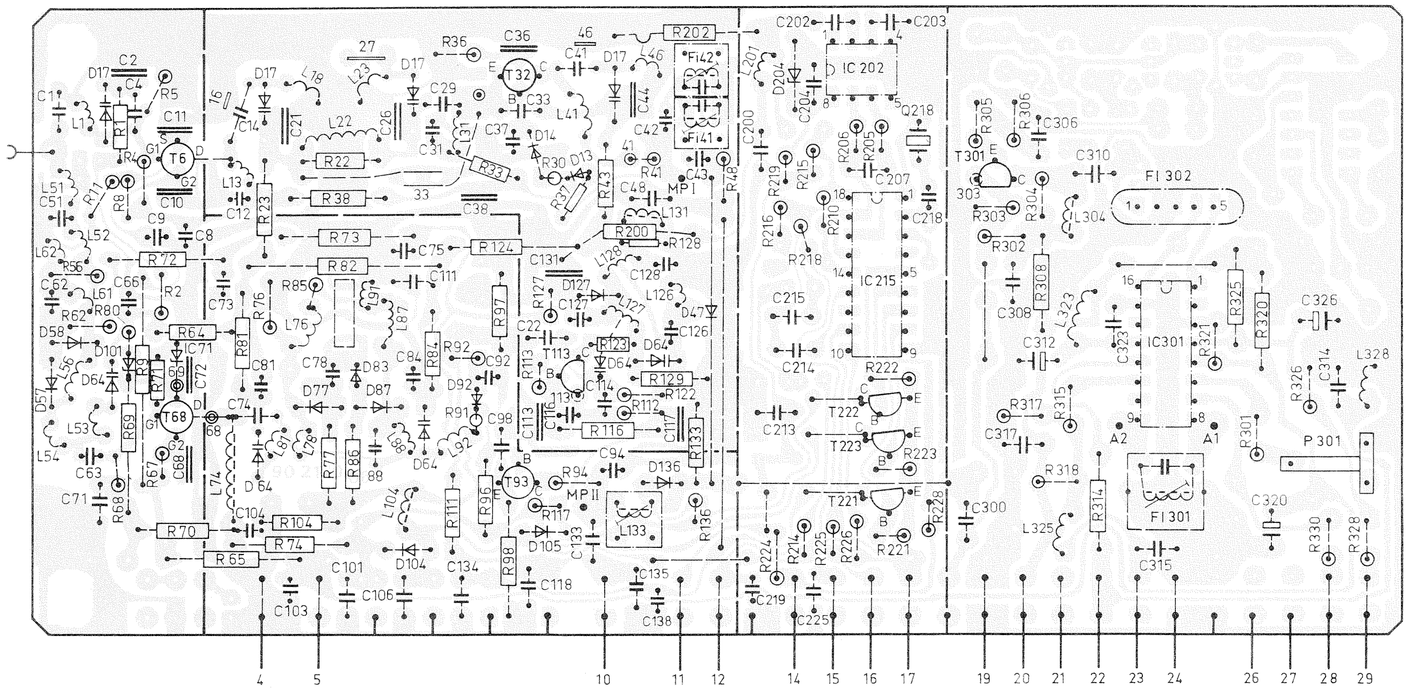


Leiterplatte HF-Block
P.C.B. RF block
Piastra Unità AF
MTS 2000 S 563.794
Lötseite – Soldered side – Lato saldature

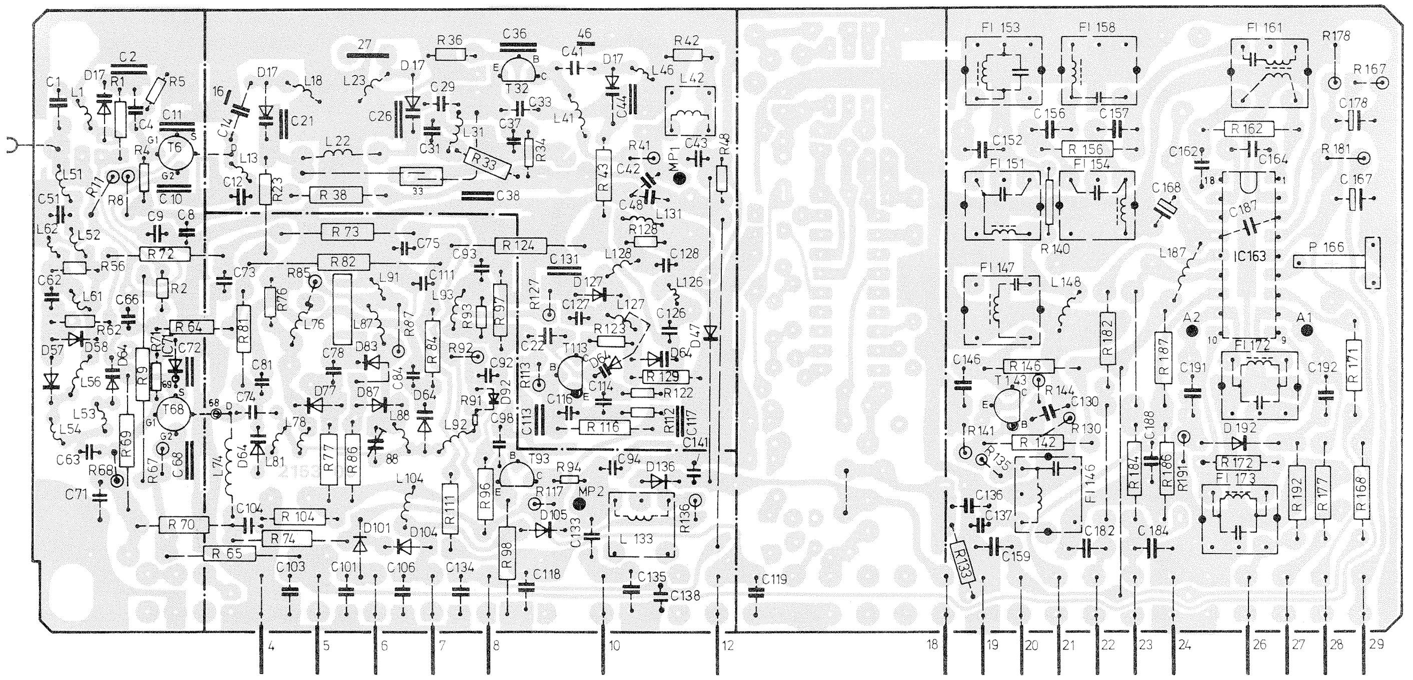




Block
block
à AF
.796
dature



Block
block
à AF
.799
dature



Block
block
à AF
.794
dature

Regelkreis

Die Betriebsspannung U 1 wird über den Spannungsteiler RP 11, PP 01, RP 09 der Basis des TP 05 zugeführt. Am Emitter des Transistors stehen im eingeschwungenen Betriebszustand 6,2 V, die durch DP 20 stabilisiert von U 2a über die Entkopplungsdiode DP 15, TP 21 und RP 25 abgeleitet werden. TP 05 ist also als Stromquelle für das sägezahnförmige RC-Glied RP 23, CP 12 anzusehen. Je nach Innenwiderstand des TP 05 verringert oder erhöht sich die Steilheit der Sägezahnspannung an TP 06. Der Schaltpunkt des Transistors kann damit zeitlich vor- oder zurückverlegt werden. Über TP 02 wird also TP 01, je nach Energiebedarf innerhalb des Zeilenhinlaufes früher oder später leitend. Damit wird die Stärke des magnetischen Feldes in LP 01 gesteuert.

Beispiel:
Bei erhöhtem Leistungsbedarf des Gerätes sinkt die Betriebsspannung U 1 leicht ab. Demzufolge verringert sich auch die Basisspannung an TP 05. Diese wird niederohmiger und sorgt für eine schnellere Aufladung von CP 12. Durch die steilere Sägezahnspannung schalten TP 06, TP 02 und TP 01 früher in den leitenden Zustand. Die Ladespule kann mehr Energie sammeln und diese nach Abschalten des TP 01 über die Speisediode DP 14 an den Ladekondensator CP 14 abgeben. Die Spannung steigt wieder auf ihren Sollwert an.

Schutzschaltungen im geregelten Netzteil

Steigt z. B. durch Fehleinstellung von PP 01 oder bei einem Vertikalausfall die Betriebsspannung U 1 unzulässig hoch an, so erhöht sich auch die Sekundärbetriebsspannung U 3, 21 V. Die Z-Spannung von DP 18 wird überschritten. TP 18 wird leitend und TP 21 sperrt. Damit ist die H-Ablenkung und das geregelte Netzteil außer Betrieb. Nach Absinken der Spannung U 3 und Entladung von CP 21 über RP 21, schaltet TP 21 durch und setzt die H-Ablenkung sowie das geregelte Netzteil erneut in Betrieb. Der Schaltzyklus ist durch die Zeitkonstante des RC-Gliedes RP 21, CP 21 bestimmt.

Control circuit

Operation voltage U 1 is supplied to the base of TP 05 through voltage splitter RP 11, PP 01 and RP 09. When in a steady state 6,2 V are available that the emitter of the transistor, which – stabilized by U 2a – are drained through decoupling diodes DP 15, TP 21 and RP 25. TP 05 is also to be seen as the current source for the RC network, RP 23 and CP 12, which generates the sawtooth. Depending on the internal resistance of TP 05, the steepness of the sawtooth voltage at TP 06 is lowered or elevated. The switching point of the transistor can thus be advanced or retarded. Under the influence of TP 02, TP 01 will become conductive during the line sweep either earlier or later, depending on the energy requirements. Thus the strength of the magnetic field in LP 01 is controlled.

Example:
As the receiver's power requirements increase, operational voltage U 1 drops slightly. As a result the base voltage at TP 05 is also reduced. The impedance drops, causing faster charging of CP 12. Due to the steeper sawtooth voltage, TP 06, TP 02 and TP 01 become conductive earlier. The charging coil can collect more energy and, once TP 01 has switched off, discharge the energy through feed diode DP 14 to charging condensor CP 14. Voltage again rises to its rescribed value.

Protective circuits in the controlled line section

If due to faulty adjustment of PP 01, for example, or in case operational voltage U 1 becomes inadmissably high due to a failure in the vertical section, secondary operating voltage U 3, 21 V, also rises. The zener voltage of DP 18 is exceeded TP 18 becomes conductive and TP 21 blocks. Thus the horizontal deflection and the controlled line section are taken out of service. After voltage U 3 has dropped and CP 21 has discharged through RP 21, TP 21 switches through, putting the horizontal deflection and the controlled line section back into service. The switching cycle is determined by the time constants of RC network RP 21, CP 21.

Circuito di regolazione

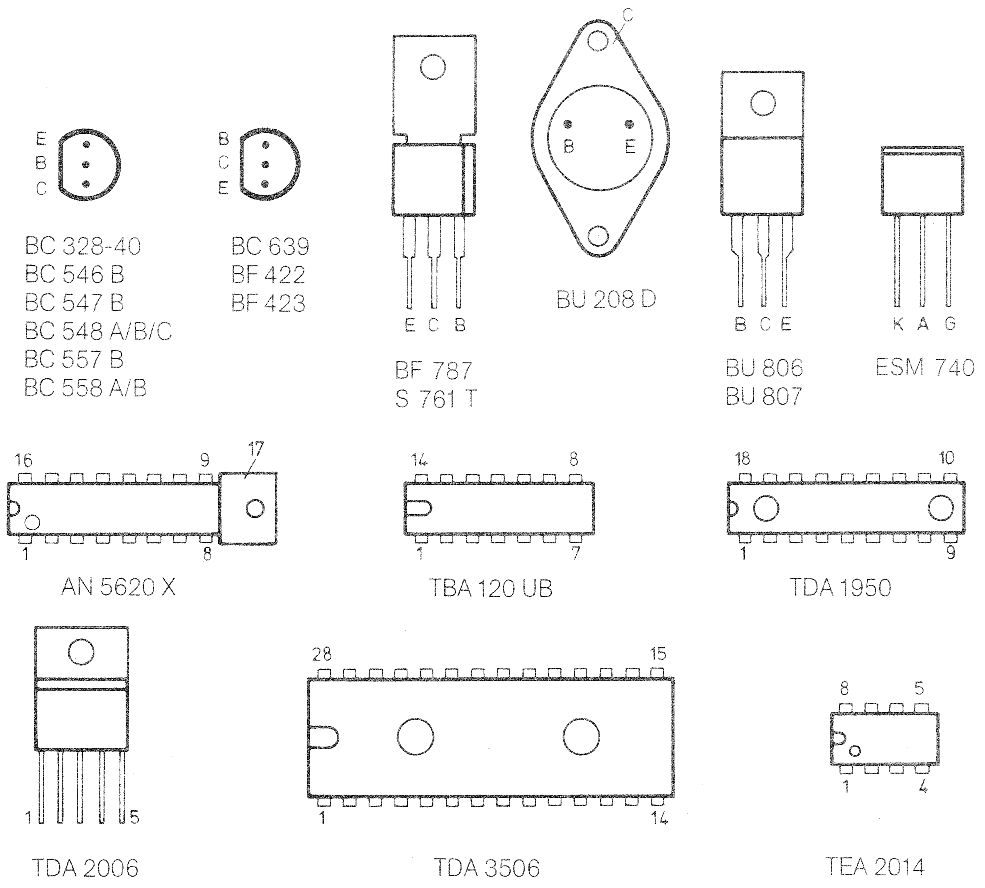
La tensione di lavoro U 1 viene portata alla base del TP 05 attraverso il partitore di tensione RP 11, PP 01, RP 09. All'emitter del transistor, nella condizione eccitata, risultano 6,2 V, che vengono stabilizzati dal DP 20 ed escono da U 2a attraverso il diodo di disaccoppiamento DP 15, TP 21 e RP 25. TP 05 è perciò da considerarsi quale fonte di corrente per il circuito RC-RP 23, CP 12 che produce il dente di sega. Conforme alla resistenza interna del TP 05 diminuisce o aumenta la ripidezza della tensione dente di sega al TP 06. Il punto di commutazione del transistor con ciò può essere anticipato o posticipato nel tempo. Attraverso TP 02 il TP 01 viene, conforme alle esigenza di energia, messo in conduzione prima o dopo il periodo dell'andata di riga. Con ciò viene pilotata l'intensità del campo magnetico nella LP 01.

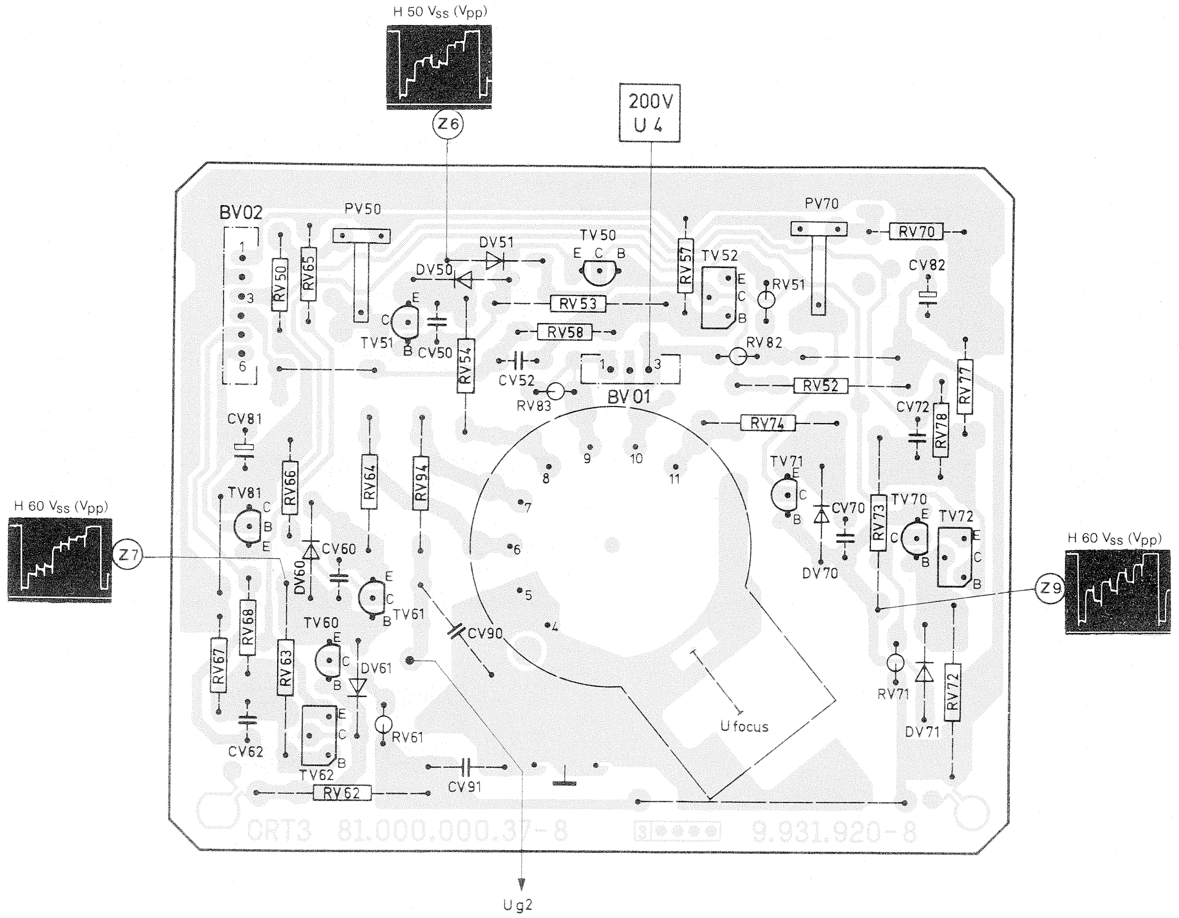
Esempio:
Con aumentato fabbisogno di potenza dell'apparecchio la tensione di lavoro U 1 cala leggermente. Di conseguenza si riduce anche la tensione alla base del TP 05. La sua resistenza ohmica si abbassa e provoca una più veloce ricarica del CP 12. Per la tensione dente di sega più ripida TP 06, TP 02 e TP 01 vanno in conduzione con anticipo. La bobina di carica può accumulare più energia e scaricarla, dopo l'interdizione del TP 01, attraverso il diodi di alimentazione DP 14 al condensatore di carica CP 14. La tensione accresce nuovamente sul suo valore nominale.

Circuiti di protezione nell'alimentatore regolato

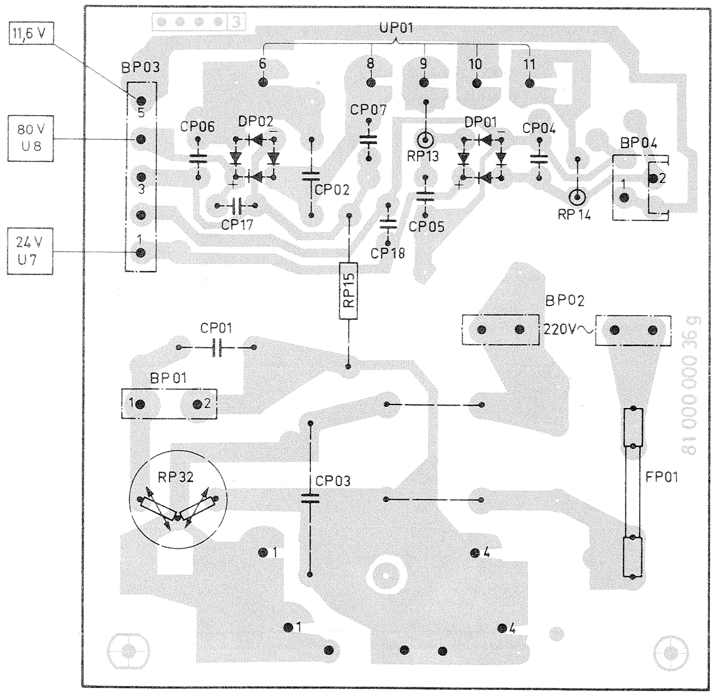
Accresce, p.es., per regolazione errata del PP 01 oppure con mancanza verticale, la tensione di lavoro U 1 su valori inammissibili, come conseguenza aumenta anche la tensione secondaria U 3 di 21 V. La tensione Z del DP 18 viene oltrepassata TP 18 è in conduzione e TP 21 va in interdizione. Con ciò la deflessione orizzontale e l'alimentazione regolata sono fuori servizio. Dopo la diminuzione della tensione U 3 e la scarica del CP 21, attraverso RP 21 il TP 21 va in conduzione e mette nuovamente in funzione la deflessione orizzontale e l'alimentatore regolato. Il ciclo di commutazione è determinato dalla costante di tempo del circuito RC-RP 21, CP 21.

Sockelschaltungen – Socket connections – Circuiti a zoccolo

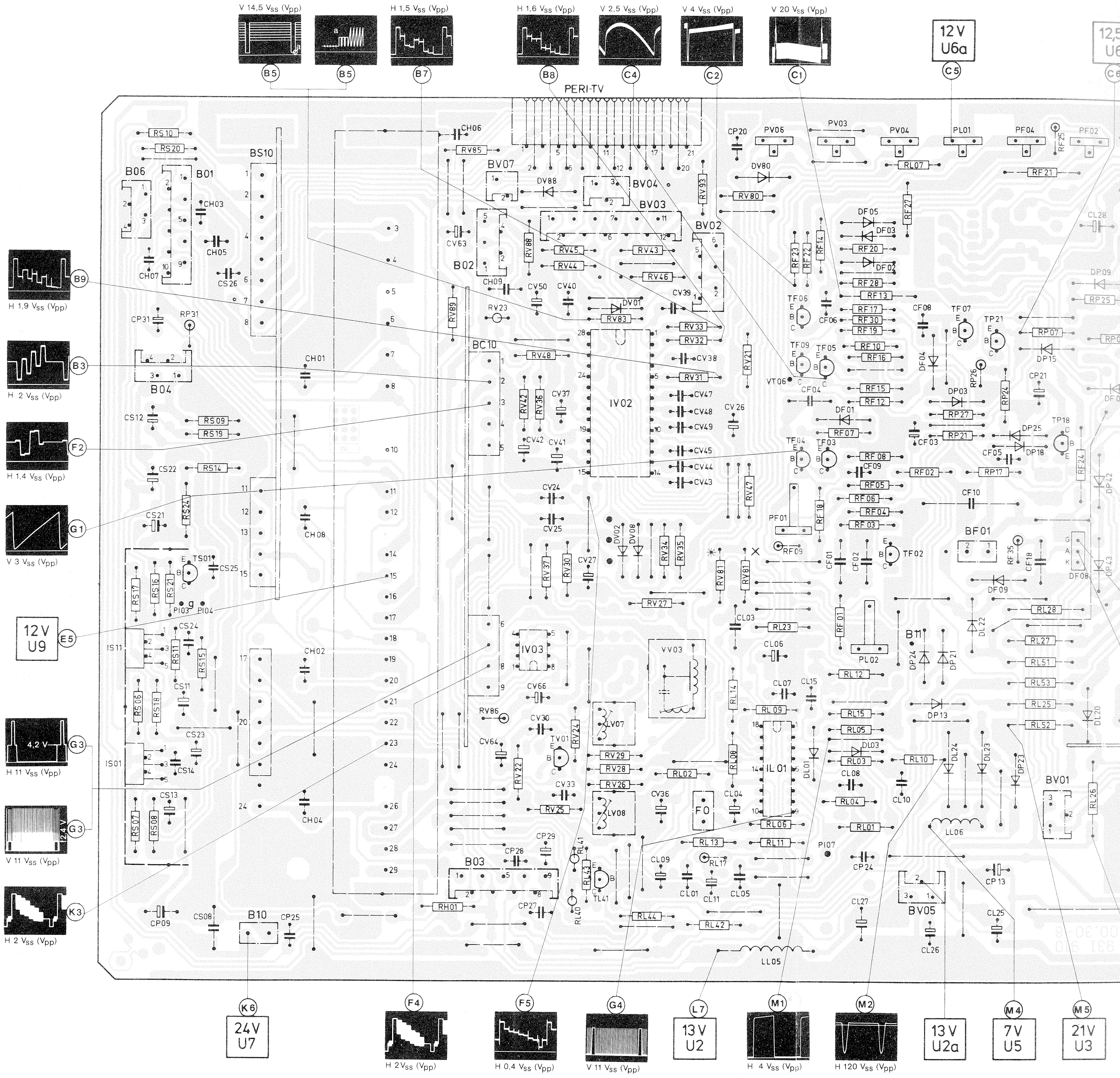



H 50 Vss (Vpp)
Z6
200V
U 4
H 60 Vss (Vpp)
Z7
H 60 Vss (Vpp)
Z9
BV02
BV 01
U focus
Ug2
CRT3 81.000.000.37-8
9.931.920-8

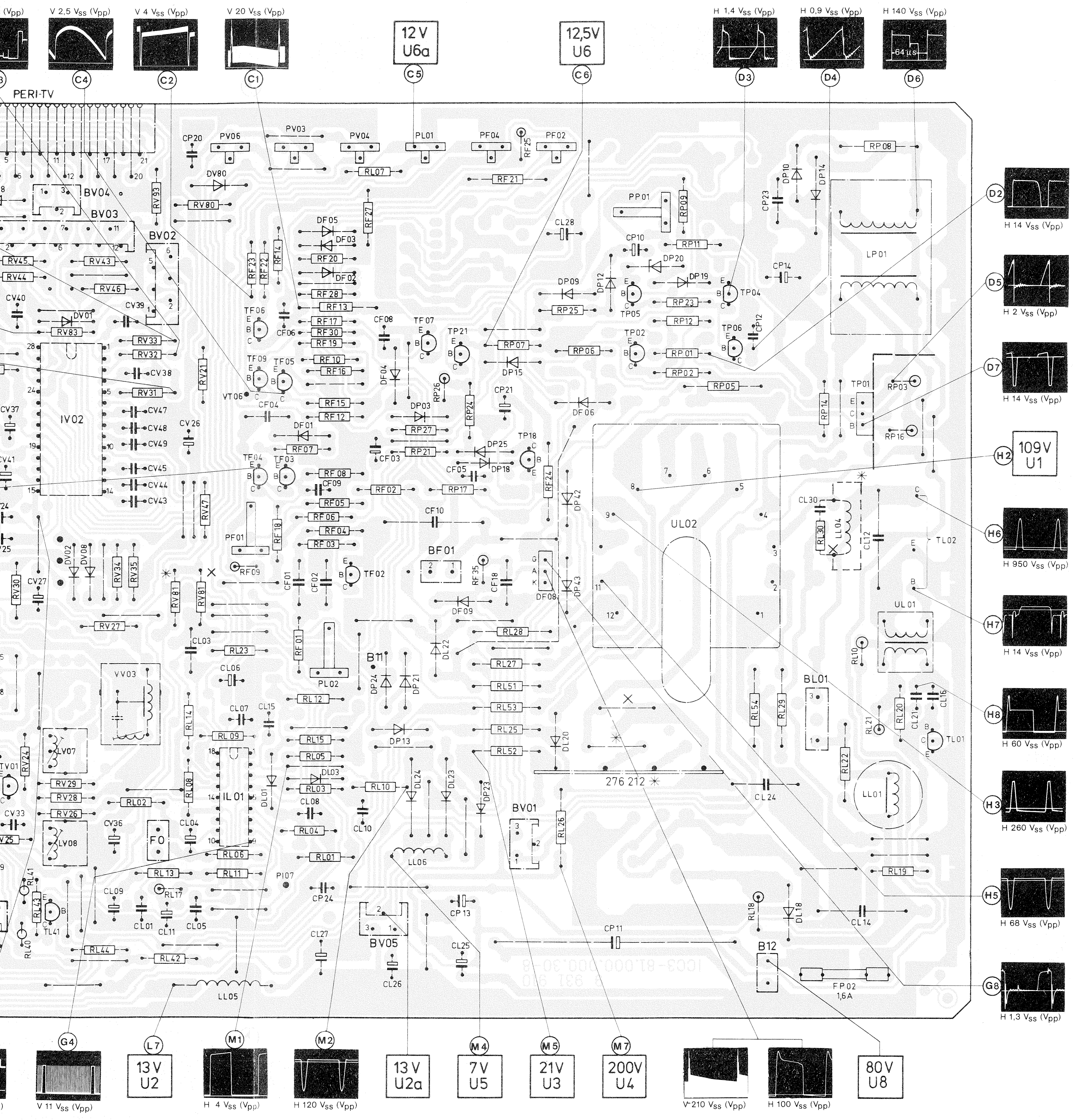
Bildrohranschluß-Platine
P.C.B. CRT socket
Piastra zoccolo cinescopio
592.802
Lötseite – Soldered side – Lato saldature


11,6 V
80 V
U8
24 V
U7
UP01
BP03
BP04
BP02
220V~
BP01
RP32
FP01
81 000 000 36 9

Leiterplatte Netzteil
P.C.B. Power unit
Piastra di rete
592.620
Lötseite – Soldered side – Lato saldature


V 14,5 Vss (Vpp)
B5
B5
H 1,5 Vss (Vpp)
B7
H 1,6 Vss (Vpp)
B8
V 2,5 Vss (Vpp)
C4
V 4 Vss (Vpp)
C2
V 20 Vss (Vpp)
C1
12 V
U6a
C5
PERI-TV
H 1,9 Vss (Vpp)
B9
H 2 Vss (Vpp)
B3
H 1,4 Vss (Vpp)
F2
V 3 Vss (Vpp)
G1
12 V
U9
E5
H 11 Vss (Vpp)
G3
V 11 Vss (Vpp)
G3
H 2 Vss (Vpp)
K3
K6
24 V
U7
F4
H 2 Vss (Vpp)
F5
H 0,4 Vss (Vpp)
G4
V 11 Vss (Vpp)
L7
13 V
U2
M1
H 4 Vss (Vpp)
M2
H 120 Vss (Vpp)
13 V
U2a
M4
7 V
U5
M5
21 V
U3
IV02
IL 01
IV03
BC10
BS10

Grundplatte
Basic P.C.B.
Piastra di base
Lötseite – Soldered side – Lato saldature


V 2,5 Vss (Vpp)
V 4 Vss (Vpp)
V 20 Vss (Vpp)
C4
C2
C1
12 V U6a
C5
12,5V U6
C6
H 1,4 Vss (Vpp)
H 0,9 Vss (Vpp)
H 140 Vss (Vpp)
64 µs
D3
D4
D6
PERI-TV
D2
H 14 Vss (Vpp)
D5
H 2 Vss (Vpp)
D7
H 14 Vss (Vpp)
H2
109V U1
H6
H 950 Vss (Vpp)
H7
H 14 Vss (Vpp)
H8
H 60 Vss (Vpp)
H3
H 260 Vss (Vpp)
H5
H 68 Vss (Vpp)
G8
H 1,3 Vss (Vpp)
G4
V 11 Vss (Vpp)
L7
13 V U2
M1
H 4 Vss (Vpp)
M2
H 120 Vss (Vpp)
13 V U2a
M4
7V U5
M5
21V U3
M7
200V U4
V 210 Vss (Vpp)
H 100 Vss (Vpp)
80 V U8
IV02
UL02
UL01
LP01
BF01
BV01
BV02
BV03
BV04
BV05
IL 01
VV03
LL01
LL05
LL06
BL01
TL01
TL02
B11
B12
FP02 1,6A
276 212 ✱
FO

Grundplatte
Basic P.C.B.
Piastra di base
Lötseite – Soldered side – Lato saldature

✱nur bei Kaskade
only with cascade
solo con cascata

x nur bei Diodenspilt-Transformator
only with diode split transformer
solo con trasformatore a separazione diodica

Schaltbildhinweise

Spannungen gemessen mit Instrument Ri ≧ 50 kOhm/V.

Oszillogramme gemessen mit FBAS-Signal an Antenneneingang.

ACHTUNG!

Bildröhre und Ablenksystem sind eine fest verbundene Einheit und vom Werk optimal eingestellt. Folgende Punkte sind unbedingt zu beachten:

Keine Veränderungen an den Halskomponenten vornehmen.

Keine versiegelten Schrauben am Ablenksystem lösen.

Jeglichen Zugriff (Transport) an den Halskomponenten unterlassen.

(D6)

Meßpunkte auf den gedruckten Platinen

1 … 21

Anschlüsse der Peri-TV-Buchse

◇1 … ◇12

Anschlüsse der Stiftleiste BV 03

NB

nicht brennbarer Widerstand

⚠

Sicherheitszeichen

Diese Bauteile sind bei Reparaturen nur durch die vom Hersteller geprüften und angegebenen Originalteile zu ersetzen, um die vorgesehene Betriebssicherheit zu gewährleisten.

Alle nicht gekennzeichneten Dioden 1 N 4148

Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max. 25 kV.

Änderungen vorbehalten.

Circuit notes

Voltage measured with instrument Ri ≧ 50 kOhm/V.

Oscillograms measured with colour bar signal to antenna input.

NOTE!

Cathode ray tube and deflection system are a complete fixed unit which is optimally adjusted at the factury. It is essential that the following points be observed:

Do not alter the position of the neck components.

Do not slaken any sealed screws.

Do not lift or hold the unit by the neck components.

(D6)

Test points on the printed boards

1 … 21

Connections of the Peri-TV socket.

◇1 … ◇12

Connections of the socket strip BV 03

NB

Non-inflammable resistor

⚠

Components designated by the safety symbol should, when necessary for repair, only be replaced by original parts produced and proofed by the manufacturer. Only then can the original operational safety be guaranteed.

Diodes not designated all 1 N 4148

The X-ray radiation generated by this receiver is adequately screened. Acceleration voltage: max. 25 kV.

Subject to modification.

Indicazione sullo schema

Tensioni misurate con strume
50 kOhm/V.

Oscillogrammi rilevati con segnal
colore all'ingresso d'antenna.

ATTENZIONE!

Il cinescopio ed il giogo di deflessi
un'unità solidamente collegata e so
modo ottimo dalla fabbrica. E'indisp
servare le istruzioni seguenti:

Effettuare nessuna modificazione
nenti a collare.

Non togliere delle viti sigillante sul
flessione.

Per il trasporto mai sollevare l'ap
componenti a collare.

(D6)

Punti di misura sulle piastre stram

1 … 21

Collegamenti della presa Peri-TV.

◇1 … ◇12

Collegamenti della lista presa BV 03

NB

Resistenza non infiammabile.

⚠

Contrassegno di sicurezza

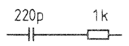
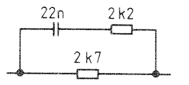
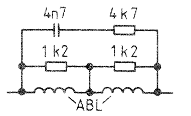
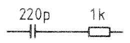
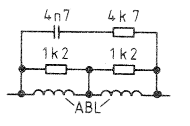
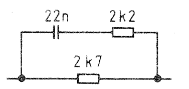
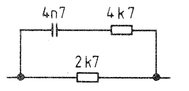
Nel caso di riparazione questi elem
venire sostituito soltanto per delle p
bio originali controllati e designati
fabbricante per garantire la sicurez
namento prevista.

Tutti i diodi non contressegnati 1 N

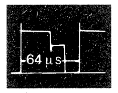
Le radiazioni X generatore in ques
sono sufficientemente schermate.
accelerazione: max. 25 kV.

Con riserva di modifiche.

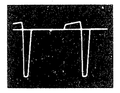
Zusatzbeschaltung der Ablenkeinheit
Supplementary circuitry of the deflection unit
Circuiti supplementari del giogo di deflessione

Bildröhrentyp Type of picture tube Tipo di cinescopio	Horizontal Orizzontale	Vertikal Vertical Verticale
Hitachi 16" A 42 – 426 X		
Hitachi 20" A 51 – 426 X Hitachi 22" A 56 – 426 X		 4n7 4k7 1k2 1k2 ABL
Videocolor 20" A 51 – 426 X		 4n7 4k7 1k2 1k2 ABL
Toshiba 16" 420 FVB 22 TC 02		
Toshiba 20" 510 ZAB 22 TC 02 Toshiba 22" 560 FGB 22 TC 02		

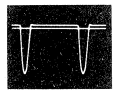
Oszillogramme Netzteil
Oscillograms power unit
Oscillogrammi sezione di re



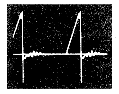
(D6)
H
140 Vss (Vpp)



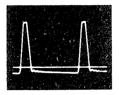
(D7)
H
14 Vss (Vpp)



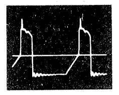
(H5)
H
68 Vss (Vpp)



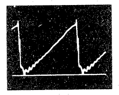
(D5)
H
2 Vss (Vpp)



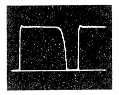
(H3)
H
260 Vss (Vpp)



(D3)
H
1,4 Vss (Vpp)



(D4)
H
0,9 Vss (Vpp)



(D2)
H
14 Vss (Vpp)

Schaltbildhinweise

Spannungen gemessen mit Instrument Ri ≧ 50 kOhm/V.

Oszillogramme gemessen mit FBAS-Signal an Antenneneingang.

ACHTUNG!

Bildröhre und Ablenksystem sind eine fest verbundene Einheit und vom Werk optimal eingestellt. Folgende Punkte sind unbedingt zu beachten:

Keine Veränderungen an den Halskomponenten vornehmen.

Keine versiegelten Schrauben am Ablenksystem lösen.

Jeglichen Zugriff (Transport) an den Halskomponenten unterlassen.

(D6)
Meßpunkte auf den gedruckten Platinen

1 … 21
Anschlüsse der Peri-TV-Buchse

◇1 … ◇12
Anschlüsse der Stiftleiste BV 03

NB
nicht brennbarer Widerstand

⚠
Sicherheitszeichen

Diese Bauteile sind bei Reparaturen nur durch die vom Hersteller geprüften und angegebenen Originalteile zu ersetzen, um die vorgesehene Betriebssicherheit zu gewährleisten.

Alle nicht gekennzeichneten Dioden 1 N 4148

Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max. 25 kV.

Änderungen vorbehalten.

Circuit notes

Voltage measured with instrument Ri ≧ 50 kOhm/V.

Oscillograms measured with colour bar signal to antenna input.

NOTE!

Cathode ray tube and deflection system are a complete fixed unit which is optimally adjusted at the factory. It is essential that the following points be observed:

Do not alter the position of the neck components.

Do not slaken any sealed screws.

Do not lift or hold the unit by the neck components.

(D6)
Test points on the printed boards

1 … 21
Connections of the Peri-TV socket.

◇1 … ◇12
Connections of the socket strip BV 03

NB
Non-inflammable resistor

⚠
Components designated by the safety symbol should, when necessary for repair, only be replaced by original parts produced and proofed by the manufacturer. Only then can the original operational safety be guaranteed.

Diodes not designated all 1 N 4148

The X-ray radiation generated by this receiver is adequately screened. Acceleration voltage: max. 25 kV.

Subject to modification.

Indicazione sullo schema

Tensioni misurate con strumento Ri ≧ 50 kOhm/V.

Oscillogrammi rilevati con segnale a barre di colore all'ingresso d'antenna.

ATTENZIONE!

Il cinescopio ed il giogo di deflessione formono un'unità solidamente collegata e sono regolati in modo ottimo dalla fabbrica. E'indispensabile osservare le istruzioni seguenti:

Effettuare nessuna modificazione sui componenti a collare.

Non togliere delle viti sigillante sul giogo di deflessione.

Per il trasporto mai sollevare l'apparecchio ai componenti a collare.

(D6)
Punti di misura sulle piastre strampate

1 … 21
Collegamenti della presa Peri-TV.

◇1 … ◇12
Collegamenti della lista presa BV 03

NB
Resistenza non infiammabile.

⚠
Contrassegno di sicurezza

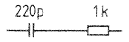
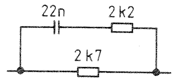
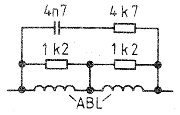
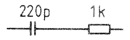
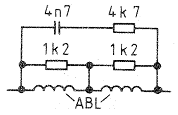
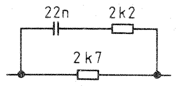
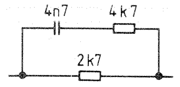
Nel caso di riparazione questi elementi devono venire sostituito soltanto per delle parti di ricambio originali controllati e designati da parte del fabbricante per garantire la sicurezza di funzionamento prevista.

Tutti i diodi non contressegnati 1 N 4148

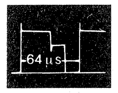
Le radiazioni X generatore in questo televisore sono sufficientemente schermate. Tensione di accelerazione: max. 25 kV.

Con riserva di modifiche.

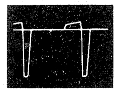
Zusatzbeschaltung der Ablenkeinheit
Supplementary circuitry of the deflection unit
Circuiti supplementari del giogo di deflessione

Bildröhrentyp Type of picture tube Tipo di cinescopio	Horizontal Orizzontale	Vertikal Vertical Verticale
Hitachi 16" A 42 – 426 X		
Hitachi 20" A 51 – 426 X Hitachi 22" A 56 – 426 X		 4n7 4k7 1k2 1k2 ABL
Videocolor 20" A 51 – 426 X		 4n7 4k7 1k2 1k2 ABL
Toshiba 16" 420 FVB 22 TC 02		
Toshiba 20" 510 ZAB 22 TC 02 Toshiba 22" 560 FGB 22 TC 02		

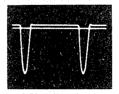
Oszillogramme Netzteil
Oscillograms power unit
Oscillogrammi sezione di rete



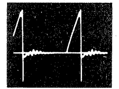
(D6)
H
140 V_{ss} (V_{pp})



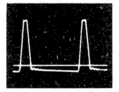
(D7)
H
14 V_{ss} (V_{pp})



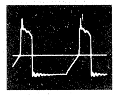
(H5)
H
68 V_{ss} (V_{pp})



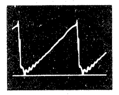
(D5)
H
2 V_{ss} (V_{pp})



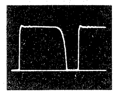
(H3)
H
260 V_{ss} (V_{pp})



(D3)
H
1,4 V_{ss} (V_{pp})

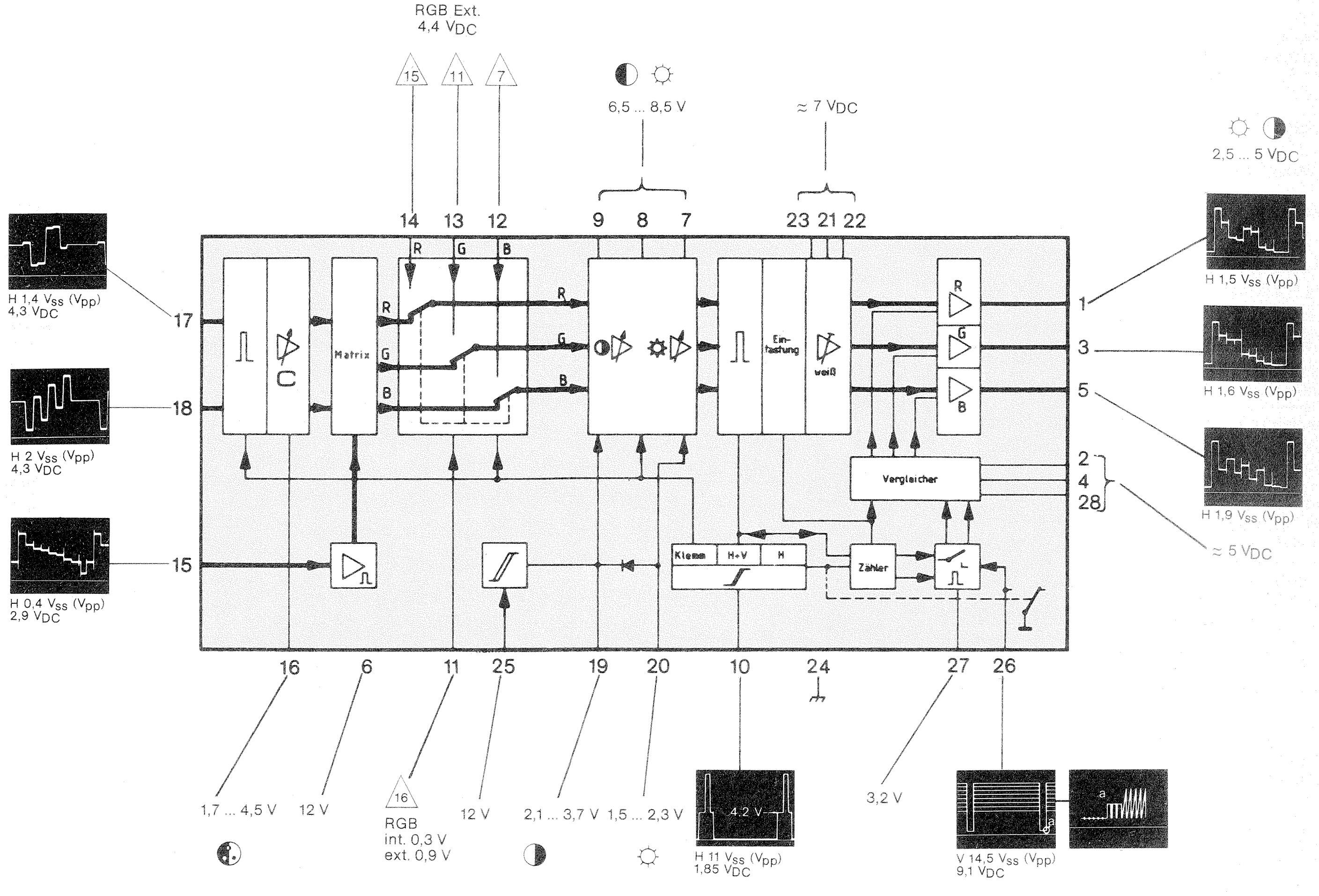


(D4)
H
0,9 V_{ss} (V_{pp})

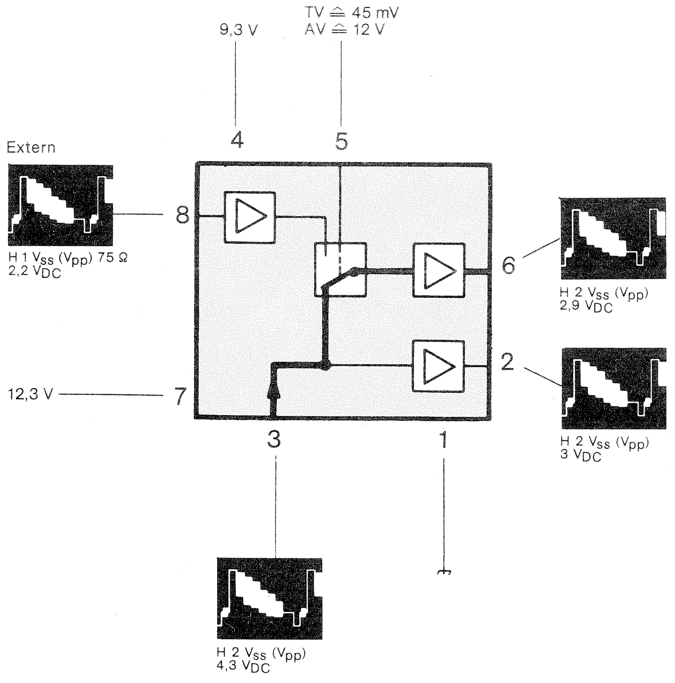


(D2)
H
14 V_{ss} (V_{pp})

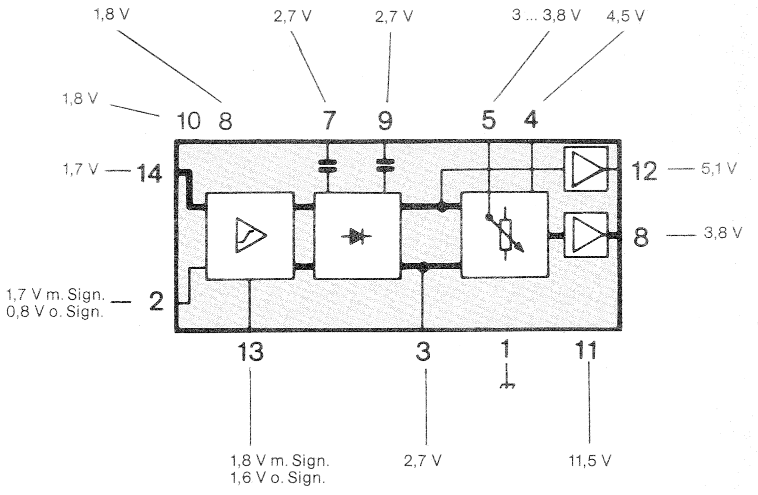
IV 02 TDA 3506


RGB Ext.
4,4 V_DC
15
11
7
14 13 12
R G B
6,5 ... 8,5 V
9 8 7
≈ 7 V_DC
23 21 22
2,5 ... 5 V_DC
H 1,4 V_ss (V_pp)
4,3 V_DC
17
H 2 V_ss (V_pp)
4,3 V_DC
18
H 0,4 V_ss (V_pp)
2,9 V_DC
15
Matrix
R
G
B
Ein-
tastung
weiß
Vergleicher
Klemm
H+V
H
Zähler
1
3
5
2
4
28
H 1,5 V_ss (V_pp)
H 1,6 V_ss (V_pp)
H 1,9 V_ss (V_pp)
≈ 5 V_DC
16 6 11 25 19 20 10 24 27 26
1,7 ... 4,5 V
12 V
16
RGB
int. 0,3 V
ext. 0,9 V
12 V
2,1 ... 3,7 V
1,5 ... 2,3 V
4,2 V
H 11 V_ss (V_pp)
1,85 V_DC
3,2 V
a
V 14,5 V_ss (V_pp)
9,1 V_DC

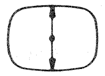
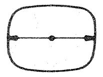
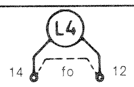
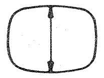
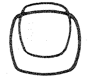
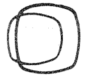
IV 03 TEA 2014


9,3 V
TV ≙ 45 mV
AV ≙ 12 V
4
5
Extern
H 1 V_ss (V_pp) 75 Ω
2,2 V_DC
8
6
H 2 V_ss (V_pp)
2,9 V_DC
2
H 2 V_ss (V_pp)
3 V_DC
12,3 V
7
3
1
H 2 V_ss (V_pp)
4,3 V_DC

IS 30 TBA 120 UB


1,8 V
2,7 V
2,7 V
3 ... 3,8 V
4,5 V
1,8 V
10 8 7 9 5 4
1,7 V — 14
12 — 5,1 V
8 — 3,8 V
1,7 V m. Sign.
0,8 V o. Sign.
2
13 3 1 11
1,8 V m. Sign.
1,6 V o. Sign.
2,7 V
11,5 V

Einstellarbeiten / Initial adjustment / Operazioni di messa a punti

Einstellung Adjustment Taratura	Position Posizione	einstellen auf adjust to regolare su	Hinweise Notes Avvisi
Hauptspannung Principale voltage Tensione principale	PP 01	109 V ± 1 V	◐ + ☼ = min.
		112 V ± 1 V bei Geräten mit Zeilentrafo Orega 3642-00 with sets having line transformer Orega 3642-00 con modelli con trasformatore di riga Orega 3642-00	
Vertikalsynchronisation Verticalsynchronisation Sincronizzione verticale	PF 01		
Zeilenfrequenz Line frequency Frequenca di riga	PL 02		IL 01 
Vertikalamplitude Vertical amplitude Ampiezza verticale	PF 02		
Vertikalposition Vertical position Posizione verticale	PF 04		
Horizontalposition Horizontal position Posizione orrizontale	PL01		
5,5-MHz minimum	LV 07	5,5 MHz min.	Oscilloscope Ⓩ7
4,43-MHz minimum	VV 03	4,43 MHz min.	Oscilloscope Ⓩ7
Referenz-Oszillator 4,43 MHz **A**	CC 14	+ V, ± U farblos colourness senza sfumature di colore	FUBK-Sendertestbild FUBK transmitter test pattern Monoscopio del transmettiore
B	CC 14	langsames Durchlaufen der Farbbalken until the colour bars wander slowly barre colori movimento lento	Farbtestbild Colour bar signal Segnale barre colore ③ ② 4,2 . . . 4,4 V → ①
PAL-Amplitude PAL-Phase	PC 01 LC 05	Paarigkeit min. Pairing min. Parita min.	
Schirmgitterspannung Screen grid voltage Tensione griglia schermo	PU$_{G2}$	Katode mit höchster Spannung auf 165 V–*einstellen Adjust the cathode with the highest voltage to 165 V* DC Regolare il catodo con la tensione più alta su 165 V–* *bei/with/con Color 3536/3538: 140 V–	PV 03, PV 04, PV 06 auf mechan. Mitte stellen set to center position portare in posiz. meccanica media ◐ + ☼ = min. Ⓩ6 + Ⓩ7 + Ⓩ9 messen measure misurare
Weißabgleich White alignment Taratura del bianco	PV 03	85 V_{SS} (V_{PP})	FUBK-Sendertestbild FUBK transmitter test pattern Monoscopio del transmettiore
	PV 04 PV 06	die hellen Flächen weiß einstellen adjust bright areas on screen to white regol. le parti chiare in modo che siano bianche	◐ = max. ☼ = min. Oscilloscope Ⓩ7
Grauabgleich Gray alignment Taratura dei grigi	PV 50 PV 70	die dunklen Flächen farblos einstellen adjust dark areas on screen to colourness regolare le parti scure in modo che siano senza sfumature di colore	◐ = min. ☼ = Bild gerade sichtbar picture just visable immagine appena visible Weiß- und Grauabgleich eventuell wiederholen Repeat white and gray alignment if necessary Pripetizione eventuale della taratura del bianco e dei grigi

Achtung!

Bildröhre und Ablenksystem sind eine festverbundene Einheit und vom Werk optimal eingestellt.

Folgende Punkte sind unbedingt zu beachten:

Keine Veränderungen der Halskomponenten vornehmen.

Keine versiegelten Schrauben am Ablenksystem lösen.

Jeglichen Zugriff (Transport) an den Halskomponenten unterlassen.

Note!

Cathode ray tube and deflection system are a complete fixed unit which is optimally adjusted at the factory.

It is essential that the following points be observed:

Do not alter the position of the neck components.

Do not slacken any sealed screws.

Do not lift or hold the unit by the neck components.

Attenzione!

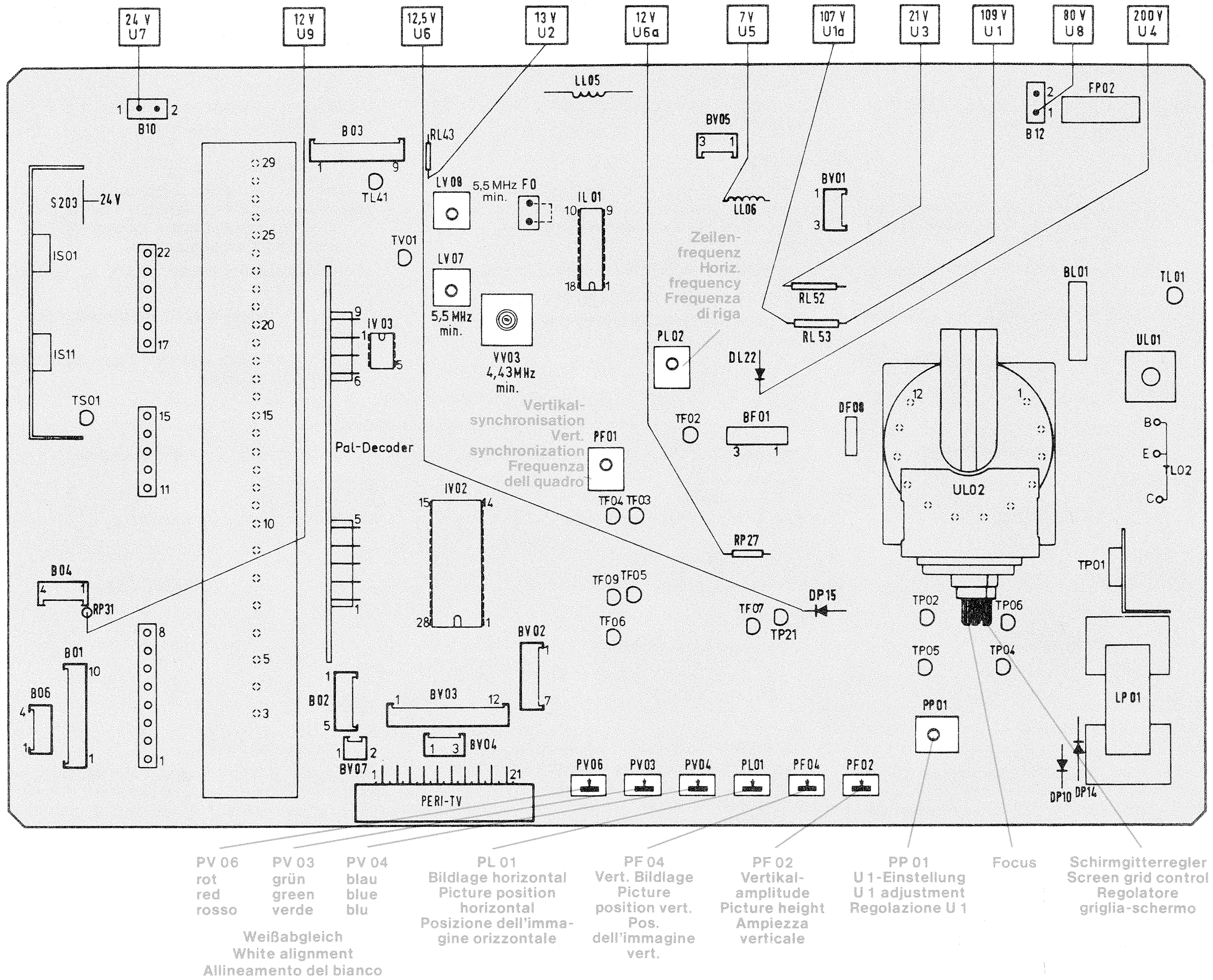
Il cinescopio ed il giogo di deflessione formono un'unità solidamente collegata e sono regolati in modo ottimo dalla fabbrica.

E'indispensabile osservare le istruzioni seguenti:

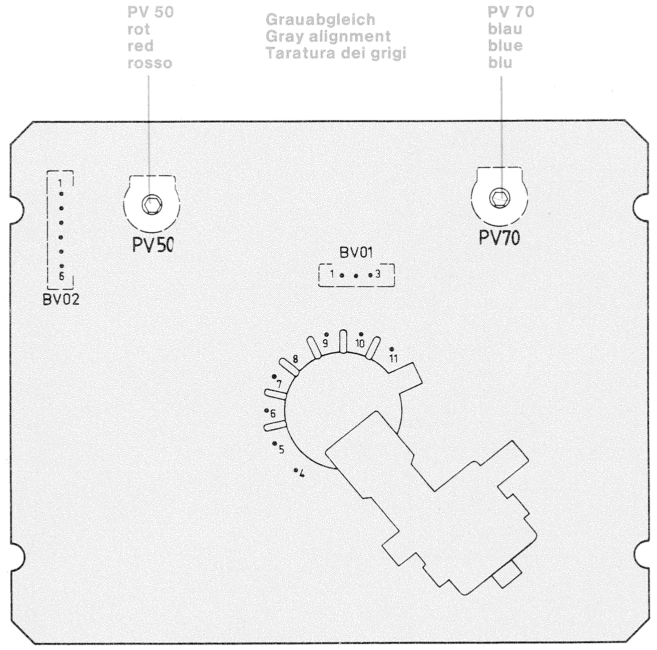
Effettuare nessuna modificazione sui componenti a collare.

Non togliere delle viti sigillate sul giogo di deflessione.

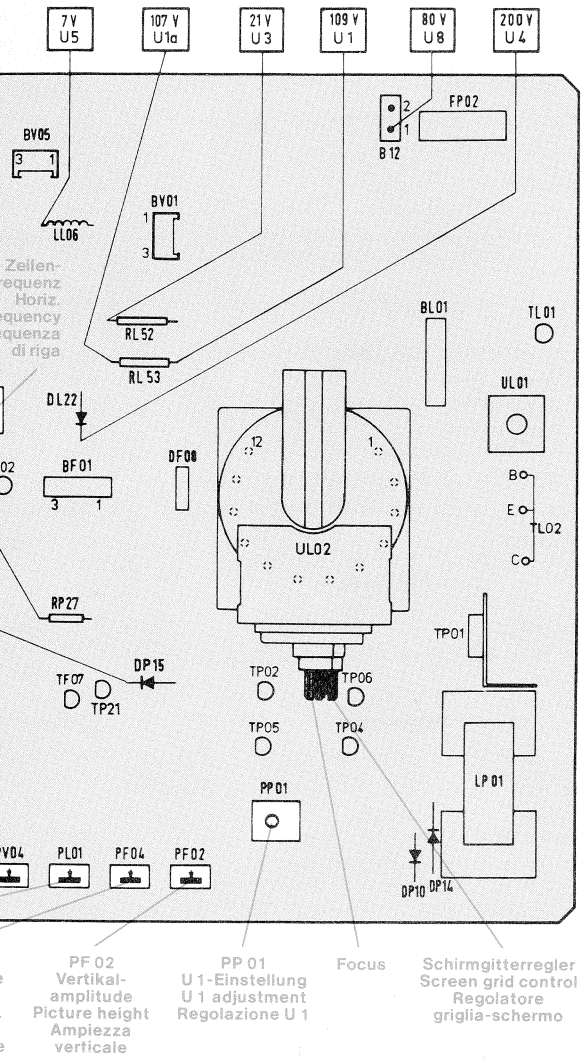
Per il trasporto mai sollevare l'apparecchio ai componenti a collare.


24 V U7
12 V U9
12,5 V U6
13 V U2
12 V U6a
7 V U5
107 V U1a
21 V U3
109 V U1
80 V U8
200 V U4
B10
LL05
BV05
B12
FP02
B03
RL43
TL41
LV08
5,5 MHz FO min.
IL 01
LL06
BV01
S203 24 V
IS01
IS11
TS01
TV01
LV07
5,5 MHz min.
VV03 4,43MHz min.
IV03
Zeilen-frequenz
Horiz. frequency
Frequenza di riga
RL52
RL53
BL01
TL01
UL01
PL02
DL22
Pal-Decoder
Vertikal-synchronisation
Vert. synchronization
Frequenza dell quadro
PF01
TF02
BF01
DF08
UL02
TL02
IV02
TF04 TF03
RP27
B04
RP31
TF09 TF05
TF06
TF07
TP21
DP15
TP02
TP06
TP01
TP05
TP04
B01
B06
BV02
B02
BY03
BY04
BV07
PP01
LP01
PERI-TV
PV06
PV03
PV04
PL01
PF04
PF02
DP10 DP14
PV 06 rot red rosso
PV 03 grün green verde
PV 04 blau blue blu
Weißabgleich
White alignment
Allineamento del bianco
PL 01 Bildlage horizontal
Picture position horizontal
Posizione dell'immagine orizzontale
PF 04 Vert. Bildlage
Picture position vert.
Pos. dell'immagine vert.
PF 02 Vertikal-amplitude
Picture height
Ampiezza verticale
PP 01 U 1-Einstellung
U 1 adjustment
Regolazione U 1
Focus
Schirmgitterregler
Screen grid control
Regolatore griglia-schermo

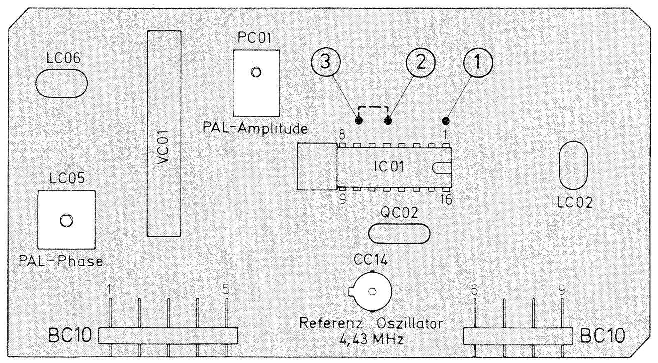
Grundplatte
Basic P.C.B.
Piastra di base
Bestückungsseite – Component side – Parte componenti


PV 50 rot red rosso
Grauabgleich
Gray alignment
Taratura dei grigi
PV 70 blau blue blu
PV50
PV70
BV01
BV02

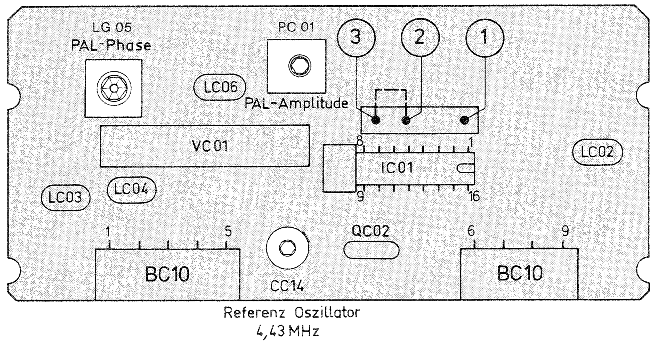
Bildrohranschluß-Platine
P.C.B. CRT socket
Piastra zoccolo cinescopio
592.802 / 592.802.B
Lötseite – Soldered side – Lato saldature


7 V U5
107 V U1a
21 V U3
109 V U1
80 V U8
200 V U4
FP02
B12
BV05
BV01
LL06
Zeilen-
frequenz
Horiz.
frequency
frequenza
di riga
RL52
RL53
BL01
TL01
UL01
DL22
BF01
DF08
UL02
TL02
RP27
TP01
DP15
TF07
TP21
TP02
TP06
TP05
TP04
PP01
LP01
DP10
DP14
PF04
PF02
PF 02
Vertikal-
amplitude
Picture height
Ampiezza
verticale
PP 01
U 1-Einstellung
U 1 adjustment
Regolazione U 1
Focus
Schirmgitterregler
Screen grid control
Regolatore
griglia-schermo

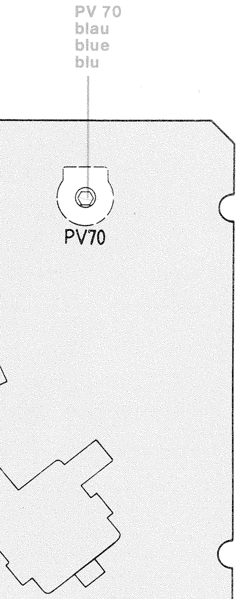
nent side – Parte componenti


LC06
VC01
PC01
PAL-Amplitude
IC01
QC02
LC02
LC05
PAL-Phase
CC14
Referenz Oszillator
4,43 MHz
BC10
BC10

PAL-Decoder
Decoder PAL
592.651
Bestückungsseite – Component side – Parte componenti


LG 05
PAL-Phase
PC 01
PAL-Amplitude
LC06
LC02
VC 01
IC01
LC03
LC04
BC10
CC14
QC02
BC10
Referenz Oszillator
4,43 MHz

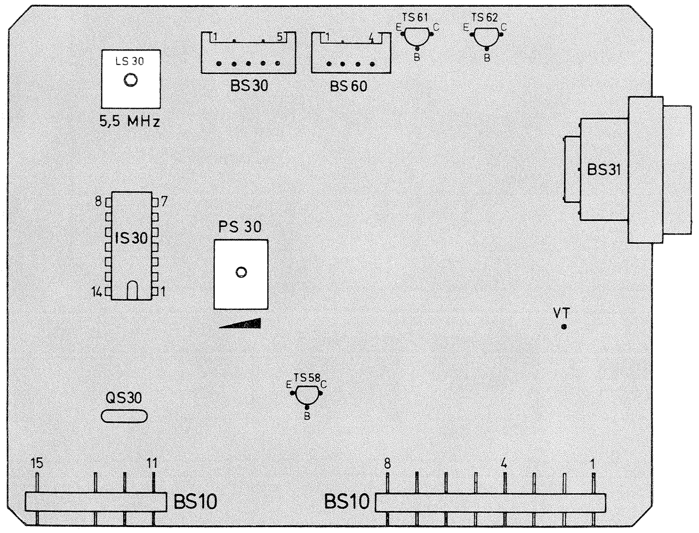
PAL-Decoder
Decoder PAL (MELF)
592.675
Bestückungsseite – Component side – Parte componenti


PV 70
blau
blue
blu
PV70

he

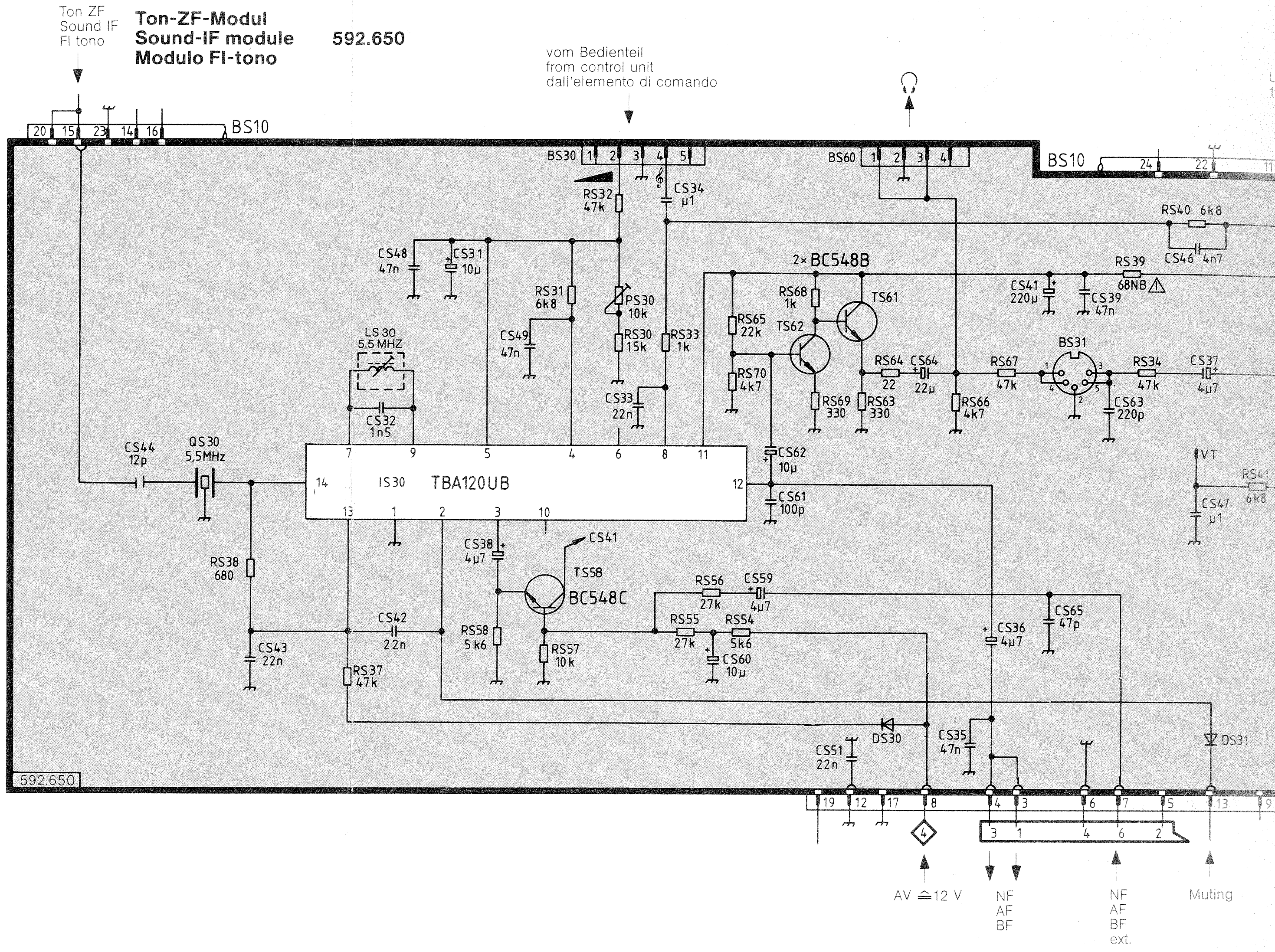
opio

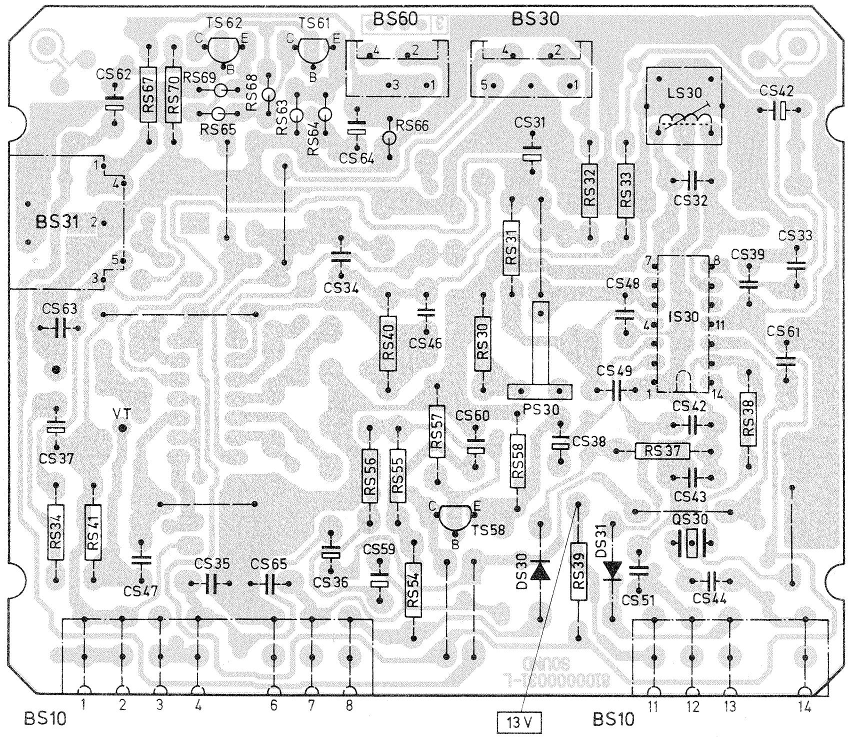
ato saldature


LS 30
5,5 MHz
BS30
BS60
TS61
TS62
BS31
IS30
PS 30
VT
TS58
QS30
BS10
BS10

Ton-ZF-Modul
Sound IF module
Modulo FI tono
592.650
Bestückungsseite – Component side – Parte componenti

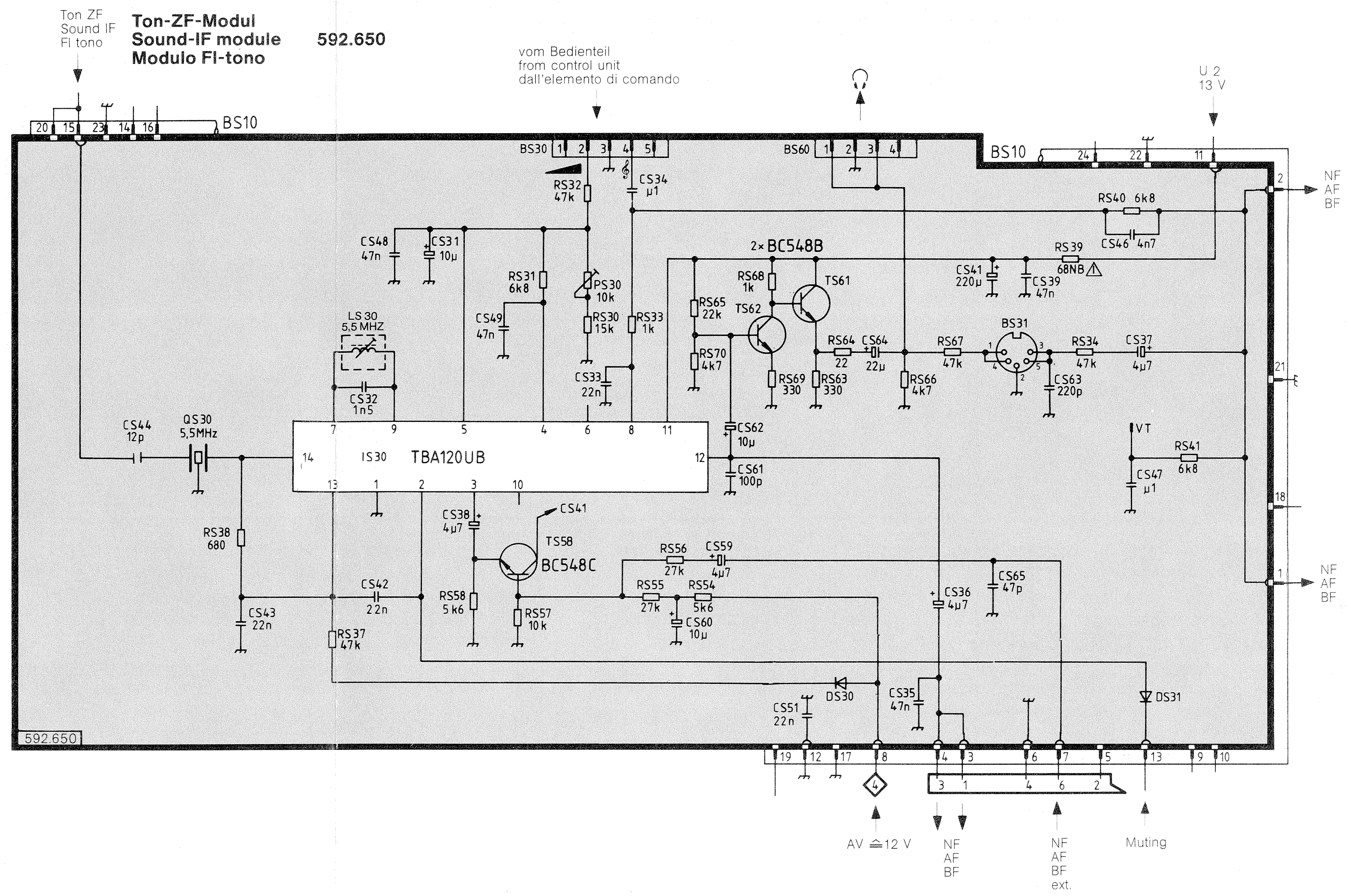
Ton-ZF-Modul
Sound-IF module
Modulo FI-tono
592.650

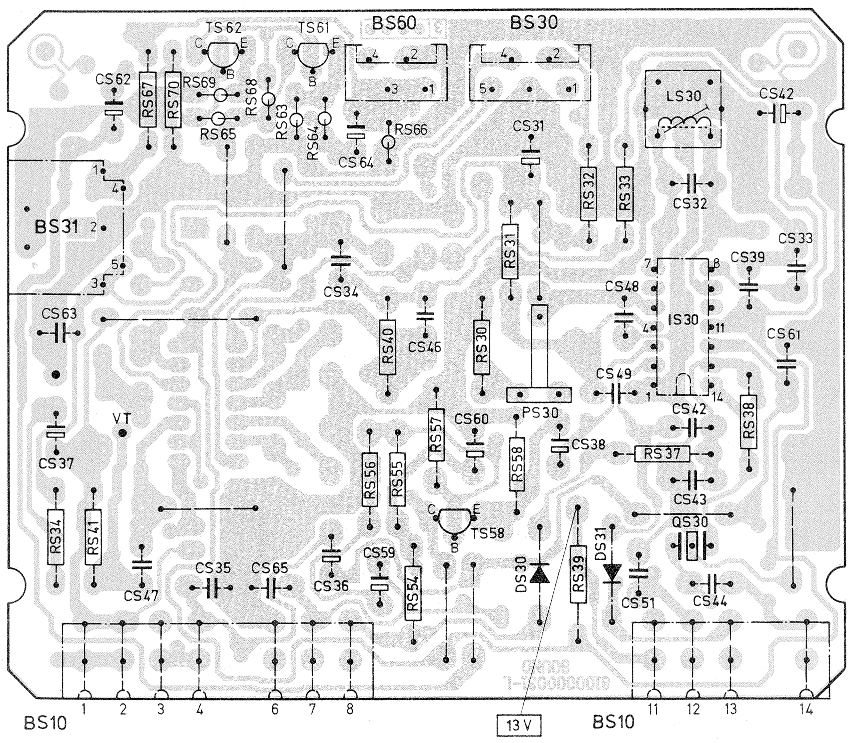

Ton ZF
Sound IF
FI tono
vom Bedienteil
from control unit
dall'elemento di comando
BS10
BS30
BS60
RS32 47k
CS34 µ1
RS40 6k8
CS48 47n
CS31 10µ
RS31 6k8
PS30 10k
RS30 15k
RS33 1k
2× BC548B
RS39 68NB
CS46 4n7
CS41 220µ
CS39 47n
RS68 1k
TS61
TS62
RS65 22k
LS 30 5,5 MHZ
CS49 47n
RS70 4k7
RS69 330
RS63 330
RS64 22
CS64 22µ
RS66 4k7
RS67 47k
BS31
RS34 47k
CS37 4µ7
CS63 220p
CS32 1n5
CS33 22n
CS62 10µ
CS61 100p
CS44 12p
QS30 5,5MHz
IS30 TBA120UB
VT
RS41 6k8
CS47 µ1
RS38 680
CS38 4µ7
CS41
TS58 BC548C
RS56 27k
CS59 4µ7
RS55 27k
RS54 5k6
CS60 10µ
CS42 22n
RS58 5k6
RS57 10k
CS43 22n
RS37 47k
CS36 4µ7
CS65 47p
CS51 22n
DS30
CS35 47n
DS31
592.650
AV ≙12 V
NF
AF
BF
NF
AF
BF
ext.
Muting


TS62
TS61
BS60
BS30
CS62
RS67
RS70
RS69
RS68
RS63
RS65
RS64
CS64
RS66
LS30
CS42
CS31
BS31
RS32
RS33
CS32
CS33
CS39
CS34
RS31
CS48
IS30
CS63
RS40
CS46
RS30
CS61
RS38
CS49
CS60
PS30
CS42
VT
RS57
RS58
CS38
RS37
CS37
RS56
RS55
CS43
QS30
TS58
RS34
RS41
CS35
CS65
CS59
DS30
RS39
DS31
CS47
CS36
RS54
CS51
CS44
BS10
BS10
13 V

Ton-ZF-Modul
Sound IF module **592.650**
Modulo FI-tono
Lötseite – Soldered side – Lato saldature

Ton-ZF-Modul
Sound-IF module
Modulo FI-tono
592.650

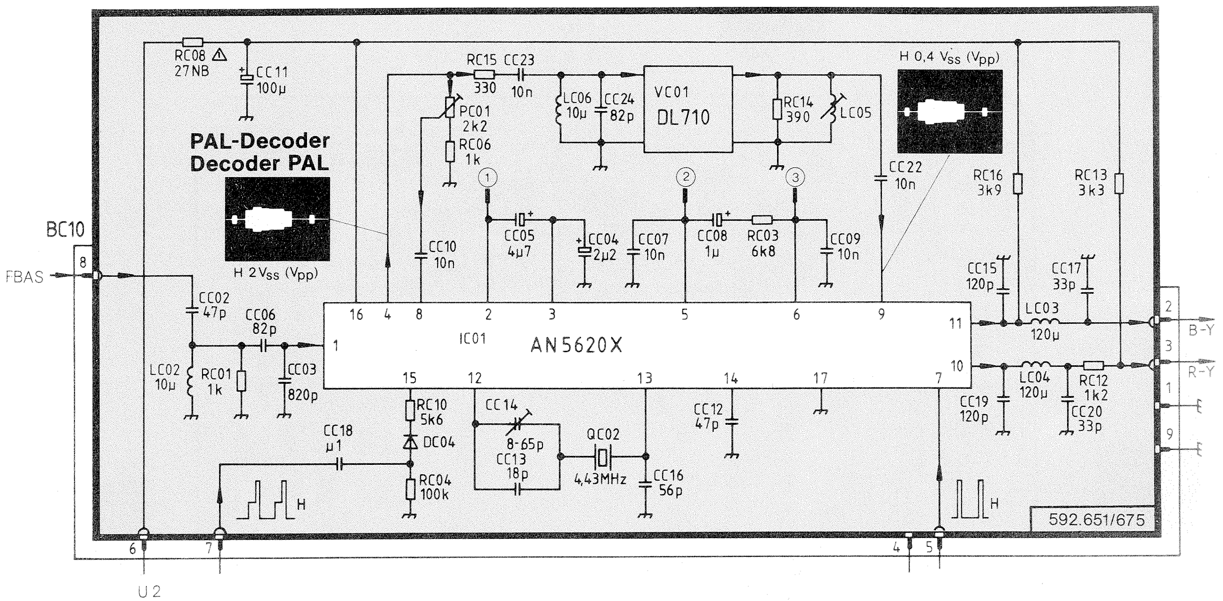

Ton ZF
Sound IF
FI tono
vom Bedienteil
from control unit
dall'elemento di comando
U 2
13 V
BS10
BS30
BS60
BS31
2×BC548B
TS61
TS62
TBA120UB
IS30
TS58
BC548C
LS30 5,5 MHZ
QS30 5,5MHz
DS30
DS31
VT
NF
AF
BF
AV ≙12 V
NF
AF
BF
ext.
Muting
592.650

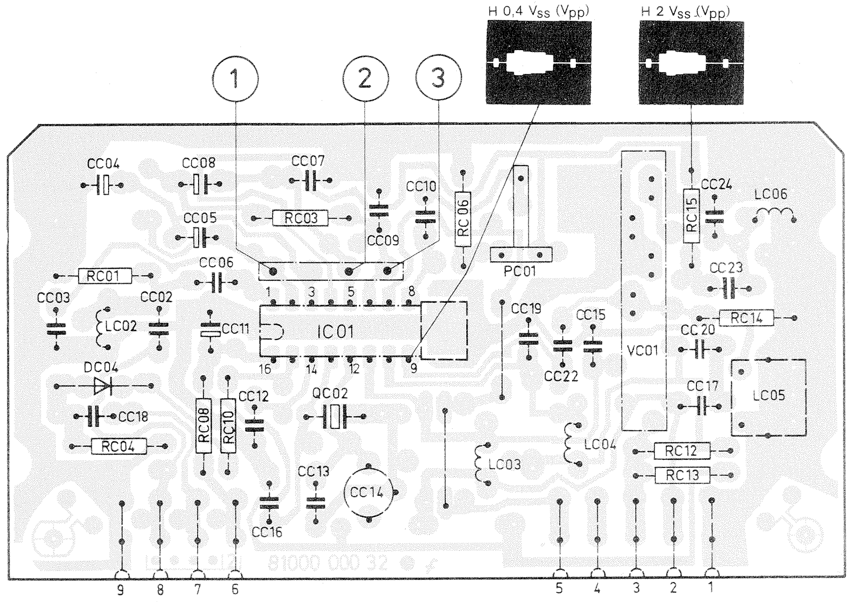

TS62
TS61
BS60
BS30
LS30
BS31
IS30
PS30
TS58
VT
QS30
BS10
13 V

Ton-ZF-Modul
Sound IF module
Modulo FI-tono
592.650

Lötseite – Soldered side – Lato saldature

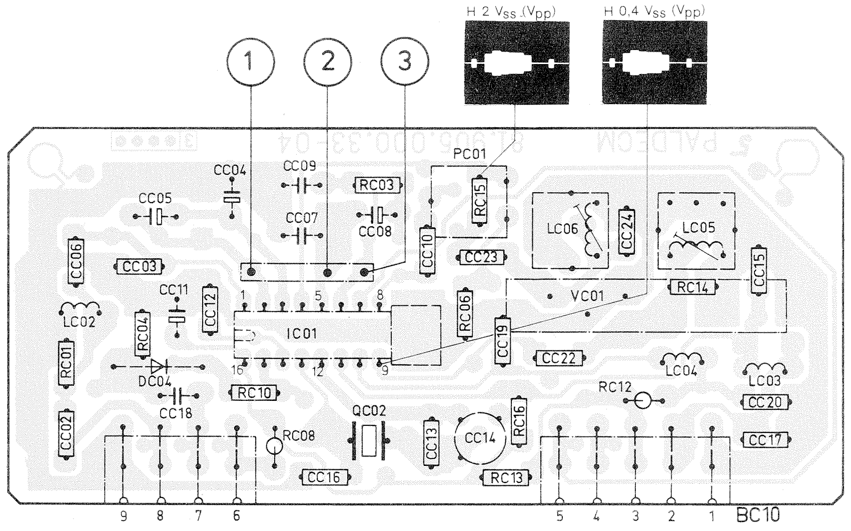
PAL-Decoder
Decoder PAL
592.651/675


PAL-Decoder
Decoder PAL
H 2 Vss (Vpp)
H 0,4 Vss (Vpp)
BC10
FBAS
IC01
AN5620X
VC01
DL710
QC02
4,43MHz
U 2
13 V
B-Y
R-Y
592.651/675


H 0,4 Vss (Vpp)
H 2 Vss (Vpp)
①
②
③
IC01
VC01
PC01
QC02
81000 000 32

PAL-Decoder
Decoder PAL
592.651

Lötseite – Soldered side – Lato saldature


H 2 Vss (Vpp)
H 0,4 Vss (Vpp)
①
②
③
IC01
VC01
PC01
QC02
BC10

PAL-Decoder
Decoder PAL (MELF)
592.675

Lötseite - Soldered side - Lato saldature

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Funktionsbeschreibung Netzteil

Anlauffunktion

Nach Betätigung des Netzschalters liefert das Primärnetzteil mit dem Netztrafo UP 01 die erforderlichen Betriebsspannungen für das geregelte Netzteil.

Über RP 21, RP 24 gelangt von der Bedienungselektronik ein L-Pegel auf die Basis des TP 21. Dieser schaltet durch, da das Primärnetzteil über DP 21, DP 24, DP 03 eine positive Spannung an den Emitter liefert.

Die nun durchgeschaltete Kollektorspannung wirkt über RP 27 als vorläufige Anlaufbetriebsspannung an Pin 14 des IL 01, dessen Zeilengenerator ab 5,5 V schwingt. Von Pin 2 wird über RL 19 der Treibertransistor TL 01 mit zeilenfrequenten Impulsen gesteuert. Die erforderliche Kollektorspannung liefert das Primärnetzteil über DP 13, die als Entkopplungsdiode dient.

Durch die Schwellenspannung der drei Dioden DP 21, DP 24, DP 03 ist sichergestellt, daß vom Zeitablauf zuerst die Kollektorspannung des TL 01 und dann erst das Ansteuersignal anliegt.

Über den Treibertrafo UL 01 erhält TL 02 für seine Schaltfunktion den erforderlichen Basisstrom. Die Kollektorspannung des TL 02 wird über die Sicherung FP 02, LP 01, DP 14, RP 14 und den Zeilentrafo zugeführt.

Die Horizontalablenkung läuft an und erzeugt im Sekundärnetzteil die notwendigen Betriebsspannungen für das Gerät. Diese sind zunächst während der Einschaltphase ohne Funktion des geregelten Netzteils etwas zu gering und unstabilisiert.

Anlauffunktion des geregelten Netzteiles

Über RP 25 und DP 12 lädt sich CP 10 auf. Erreicht das Spannungspotential am Emitter des TP 05 die um den Schwellwert erhöhte Basisspannung, so schaltet dieser durch und lädt über RP 23 den CP 12 auf. Die Zeitkonstante des RC-Gliedes läßt eine sägezahnförmige Spannungsform entstehen.

Vom Zeilentrafo gelangen positive Zeilenimpulse über RP 06 an die Basis des TP 04. Der Transistor wird während des negativen Zeilenhinlaufanteils gesperrt und in der Rücklaufphase leitend. Demzufolge liegt am Kollektor des TP 04 ein zeilenfrequenter Sägezahn als Ansteuersignal für TP 06. CP 12 wird während der Horizontal-Rücklaufphase von TP 04 entladen.

Bei Erreichen der Schwellspannung schalten TP 06 und TP 02 durch, womit auch TP 01 leitend wird und einen sägezahnförmigen Strom über RP 03 nach Masse fließen läßt. Mit diesem Strom sammelt die Ladespule LP 01 magnetische Energie.

Vom Zeilentrafoanschluß 11 wird über DP 43, DP 42 und RP 05 an die Basis des TP 01 der negative Zeilenrücklaufimpuls zugeführt, der diesen sperrt. Das zusammenbrechende magnetische Feld der LP 01 erzeugt eine Spannungsüberhöhung, die DP 14 in den leitenden Zustand versetzt und CP 14 auflädt. Die mit PP 01 einstellbare Spannung dient als Referenz für die Steuerung des Energiehaushaltes im Gerät. DP 10, RP 08 und CP 23 bedämpfen die beim Abschalten des TP 01 entstehende Spannungsspitze.

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Function description Power supply unit

Warm-up function

After actuation of the line power switch the primary line section with line transformer UP 01 supplies the operating voltages required for the controlled line section.

An L-level originating at the operating electronics and passing through RP 21 and RP 24 is applied to the base of TP 21. This switches through since the primary line section supplies a positive voltage to the emitter through DP 21, DP 24 and DP 03.

The collector voltage now switched through RP 27 serves as temporary warm-up operation voltage and is applied to pin 14 of IL 01, the line generator of which oscillates upwards of 5,5 V. Driver transistor TL 01 is triggered with horizontal-frequency pulses originating at pin 2 of IL 01 and passing through RL 19. The required collector voltage is supplied by the primary line section through DP 13, which serves as a decoupling diode.

The threshold voltages of the three diodes, DP 21, DP 24 and DP 03, insure that first the collector voltage of TL 01 is present and only then is the triggering signal applied.

TL 02 receives via driver transformer UL 01 the base current required for its switching function. The collector voltage of TL 02 is supplied through fuses FP 02, LP 01 and DP 14, RP 14 and the line transformer.

The horizontal deflection starts and generates in the secondary line section the operational voltages which the receiver requires. These are initially, during the warm-up phase, too low and non-stabilized until the controlled line section begins to function.

Warm-up function of the controlled line section

CP 10 is charged through RP 25 and DP 12. If the voltage potential at the emitter of TP 05 achieves the base voltage, elevated by threshold value, the transistor switches through and charges CP 12 through RP 23. The time constant of the RC network causes a sawtooth voltage to be generated.

From the line transformer positive horizontal pulses reach the base of TP 04 through RP 06. The transistor is blocked during the negative line sweep phase and is conductive during the flyback phase. As a result a line-frequency sawtooth is present at the collector of TP 04 as a triggering signal for TP 06. CP 12 is discharged by TP 04 during the horizontal flyback phase.

When threshold voltage is reached, TP 06 and TP 02 switch through, whereby TP 01 also becomes conductive, allowing a sawtooth current to flow to ground through RP 03. With this current the LP 01 charging coil collects magnetic energy.

From terminal 11 of the line transformer the negative line flyback pulse is supplied through DP 43, DP 42 and RP 05 to the basis of TP 01, which blocks. As the magnetic field of LP 01 collapses it generates an elevated voltage which makes DP 14 conductive and charges CP 14. The voltage adjustable at PP 01 serves as a reference for the control of the energy requirements in the receiver. DP 10, RP 08 and CP 23 damp the voltage peaks created when TP 01 switches out.

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Descrizione di funzione dell'unità alimentatore rete

Funzione di avviamento

Dopo aver azionato l'interruttore rete, la parte rete primaria del trasformatore rete UP 01 fornisce le tensioni di lavoro necessarie per l'alimentatore rete regolato.

Attraverso RP 21, RP 24, dall'elettronica comandi arriva un livello L alle base del TP 21. Questo va in conduzione perché l'alimentatore rete primario fornisce una tensione positiva all'emitter tramite DP 21, DP 24, DP 03.

La tensione collettore, ora in conduzione, agisce attraverso RP 27 come tensione di avviamento temporanea al Pin 14 dello IL 01, il cui generatore di riga oscilla dopo 5,5 V. Dal Pin 2, attraverso RL 19, con impulsi a frequenza di riga viene pilotato il transistor di pilotaggio TL 01. La necessaria tensione collettore fornisce l'alimentatore rete primario attraverso DP 13, che serve da diodo di disaccoppiamento.

Grazie alla tensione si soglia dei 3 diodi DP 21, DP 24, DP 03, è assicurato che in ordine di tempo al TP 01 prima risulta la tensione collettore e solo dopo il segnale di pilotaggio.

Attraverso il trasformatore di pilotaggio UL 01 il TL 02 riceve la necessaria corrente base per la sua funzione di commutazione. La tensione collettore del TL 02 viene portate al trasformatore di riga attraverso il fusibile FP 02 e LP 01, DP 14, RP 14.

La deflessione orizzontale si avvia e produce nell'alimentatore rete secondario le tensioni di lavoro necessarie per l'apparecchio. Queste innanzitutto durante la fase di inserimento, senza funzione dell'alimentatore rete regolato, sono un po' basse e non stabilizzate.

Funzione di avviamento dell'alimentatore rete regolato

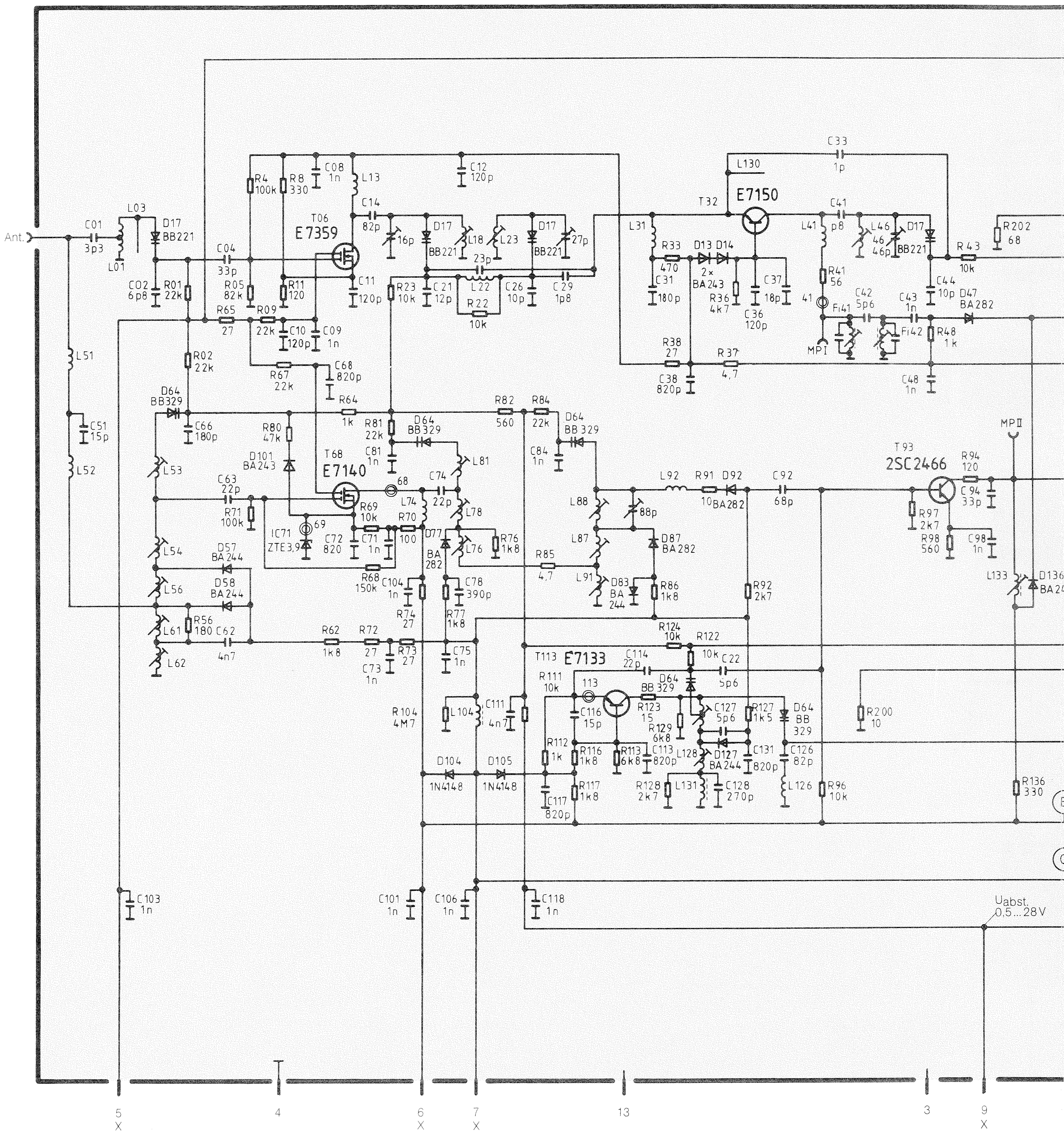
Il CP 10 prende carica attraverso RP 25 e DP 12. Se il potenziale di tensione all'emitter del TP 05 raggiunge la tensione base, aumentata del valore di soglia, esso va in conduzione e carica il CP 12 attraverso RP 23. La costante di tempo del circuito RC permette la nascita di una tensione a forma di dente di sega.

Dal trasformatore di riga tramite RP 06 arrivano impulsi di riga positivi alla base del TP 04. Il transistor è in interdizione durante la componente negativa dell'andata di riga, ed è in conduzione durante la fase di ritorno. Di conseguenza al collettore del TP 04 risulta un dente di sega a frequenza di riga come segnale di pilotaggio per il TP 06. CP 12 viene scaricato dal TP 04 durante la fase di ritorno orizzontale.

A raggiungimento della tensione soglia, TP 06 e TP 02 vanno in conduzione, con ciò va in conduzione anche TP 01 e lascia fluire una corrente a dente di sega attraverso RP 03 verso massa. Con questa corrente la bobina di carica LP 01, accumula energia magnetica.

Dal trasformatore di riga contatto 11, tramite DP 43, DP 42 e RP 05, viene portato l'impulso negative ritorno di riga alla base del TP 01, che lo mette in interdizione. Il campo magnetico in crollo nella LP 01 produce sovraelevazione di tensione che mette in coduzione il DP 14 e ricarica il CP 14. La tensione regolabile con PP 01 serve come riferimento per il pilotaggio del fabbisogno di energia nell'apparecchio. DP 10, RP 08 e CP 23 attenuano il picco di tensione che nasce con 10 spegnimento del TP 01.

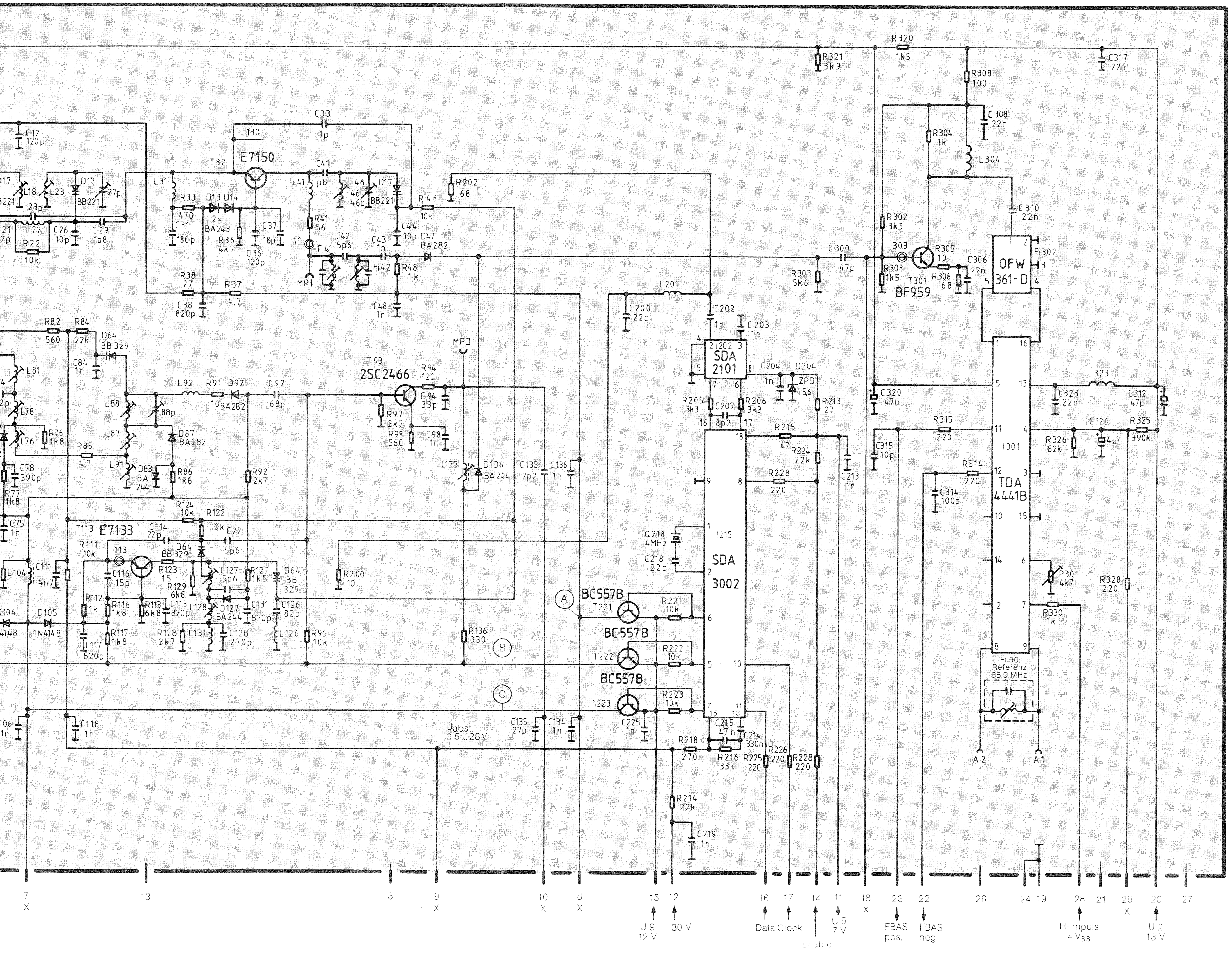
HF-Block
RF block
Unità AF
MTS 2004 S **563.799**



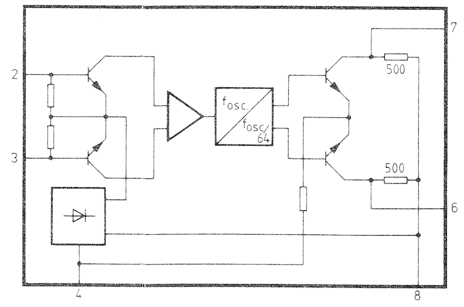
X nicht angeschlossen
X not connected
X non collegate

Banc
Banc
Com

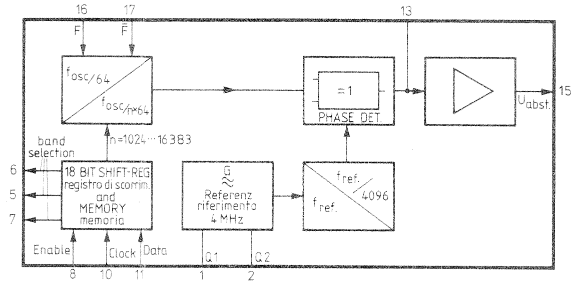
Ⓐ
L
L
H


E7150
T32
L130
C33 1p
R320 1k5
R321 3k9
R308 100
C317 22n
C308 22n
R304 1k
L304
C310 22n
R302 3k3
T301 BF959
R305 10
C306 22n
OFW 361-D
Fi302
C300 47p
R303 1k5
R306 68
R303 5k6
L201
C200 22p
C202 1n
C203 1n
I202 SDA 2101
C204 1n
D204 ZPD 56
R205 3k3
C207 8p2
R206 3k3
R213 27
C320 47µ
L323
C323 22n
C312 47µ
T93 2SC2466
R94 120
C94 33p
L92
R91
D92 BA282
C92 68p
R97 2k7
R98 560
C98 1n
MPI
MPII
L133
D136 BA244
C133 2p2
C138 1n
R215 47
R224 22k
R228 220
C213 1n
C315 10p
R315 220
R314 220
C314 100p
I301 TDA 4441B
R326 82k
C326 4µ7
R325 390k
Q218 4MHz
C218 22p
I215 SDA 3002
T113 E7133
BC557B
T221
T222
T223
R221 10k
R222 10k
R223 10k
P301 4k7
R328 220
R330 1k
Fi 30 Referenz 38,9 MHz
A2
A1
Uabst. 0,5...28V
C135 27p
C134 1n
C225 1n
C215 47n
C214 330n
R218 270
R216 33k
R225 220
R226 220
R228 220
R214 22k
C219 1n
R200 10
R136 330
R96 10k
A
B
C
7 X
13
3
9 X
10 X
8 X
15 U9 12 V
12 30 V
16 Data
17 Clock
14 Enable
11 U5 7 V
18 X
23 FBAS pos.
22 FBAS neg.
26
24
19
28 H-Impuls 4 Vss
21
29 X
20 U2 13 V
27

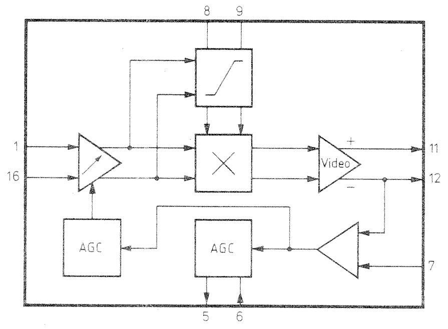
IC 202 SDA 2101


2
3
7
6
4
8
500
500
fosc
fosc/64

IC 215 SDA 3002

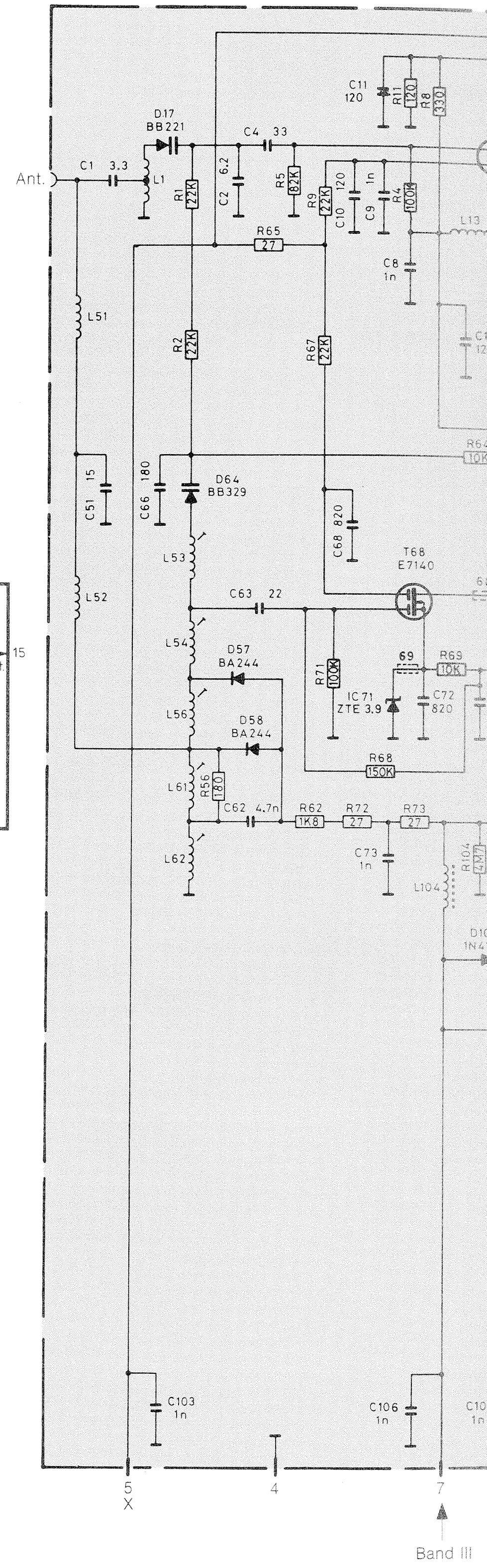

16
17
13
15
fosc/64
fosc/fosc/64
n=1024...16383
=1
PHASE DET.
Uabst
band selection
18 BIT SHIFT-REG registro di scorrim. and MEMORY memoria
Referenz riferimento 4 MHz
fref.
fref./4096
Enable
Clock
Data
Q1
Q2
8
10
11
1
2
6
5
7

IC 301 TDA 4441 B


8
9
1
16
11
12
7
5
6
Video
AGC
AGC

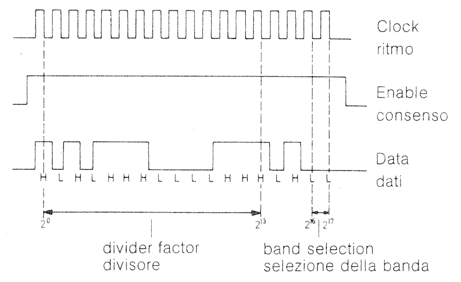
HF-Block
RF block
Unità AF

MTS 2000 **563.794**

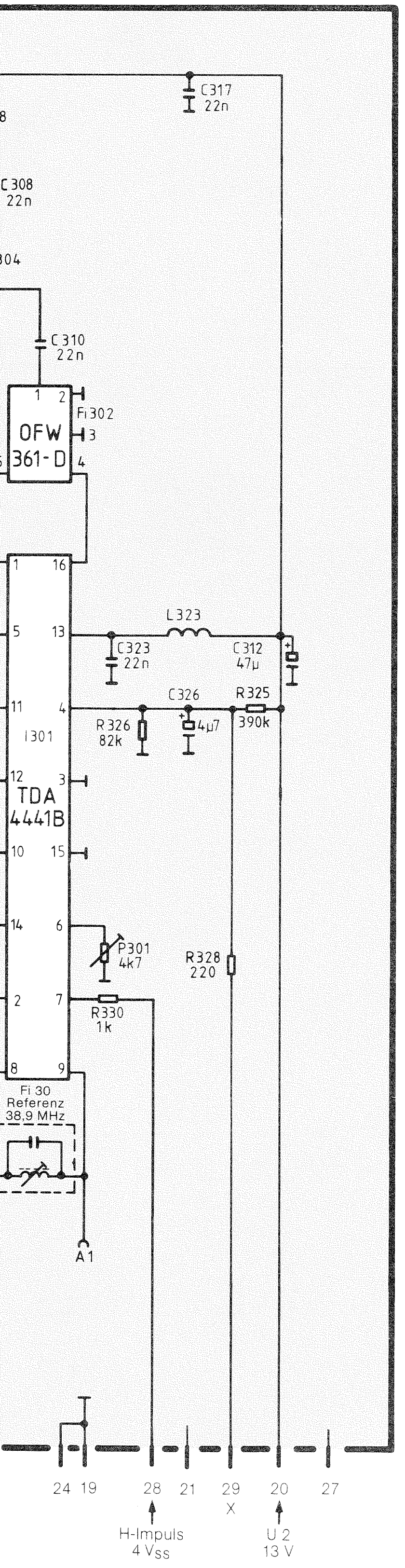

Ant.
C1 3,3
L1
D17 BB221
C4 33
C11 120
R11
R8
R1 22K
C2 6,2
R5
R9 22K
C10 120
C9
R4 100K
C8 1n
R65 27
L13
L51
R2 22K
R67 22K
C51 15
C66 180
D64 BB329
C68 820
L52
L53
T68 E7140
C63 22
L54
D57 BA244
R71 100K
IC71 ZTE 3,9
69
R65 10K
C72 820
L56
D58 BA244
R68 150K
L61
R56 180
C62 4,7n
R62 1K8
R72 27
R73 27
L62
C73 1n
L104
C103 1n
C106 1n
5 X
4
7 Band III

Bandumschaltung
Band switch
Commutazione di banda

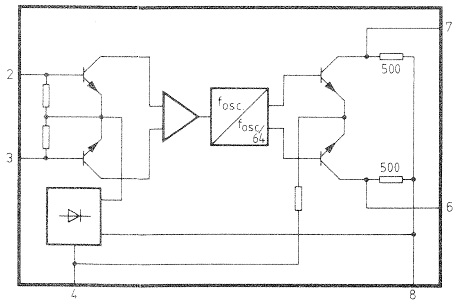
Ⓐ	Ⓑ	Ⓒ	
L	H	L	Band I
L	H	H	Band III
H	L	L	Band IV/V


Clock
ritmo
Enable
consenso
Data
dati
H L H L H H H L L L L H H H L H L L
2^0
2^{13}
2^{14}
2^{17}
divider factor
divisore
band selection
selezione della banda

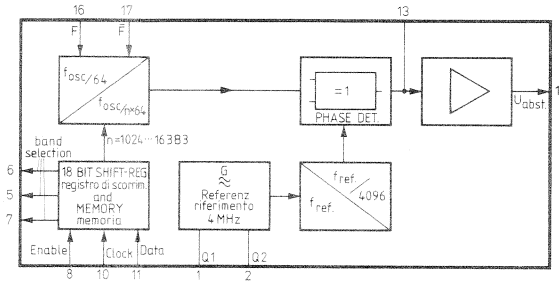
X nicht angeschlossen
X not connected
X non collegate


C317 22n
C308 22n
C310 22n
OFW 361-D
Fi302
L323
C323 22n
C312 47µ
C326
R325 390k
R326 82k
4µ7
I301
TDA 4441B
P301 4k7
R328 220
R330 1k
Fi 30 Referenz 38,9 MHz
A1
24 19 28 21 29 20 27
X
H-Impuls 4 Vss
U 2 13 V

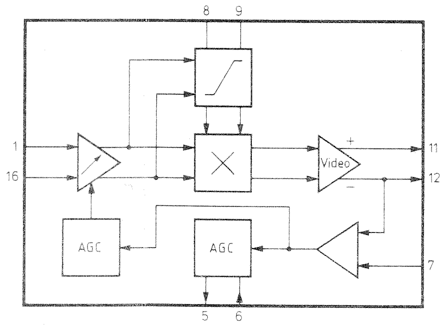
IC 202 SDA 2101

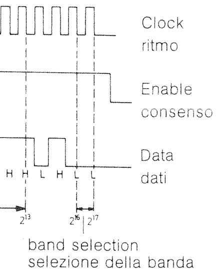

fosc
fosc/64
500
500
2
3
4
6
7
8

IC 215 SDA 3002

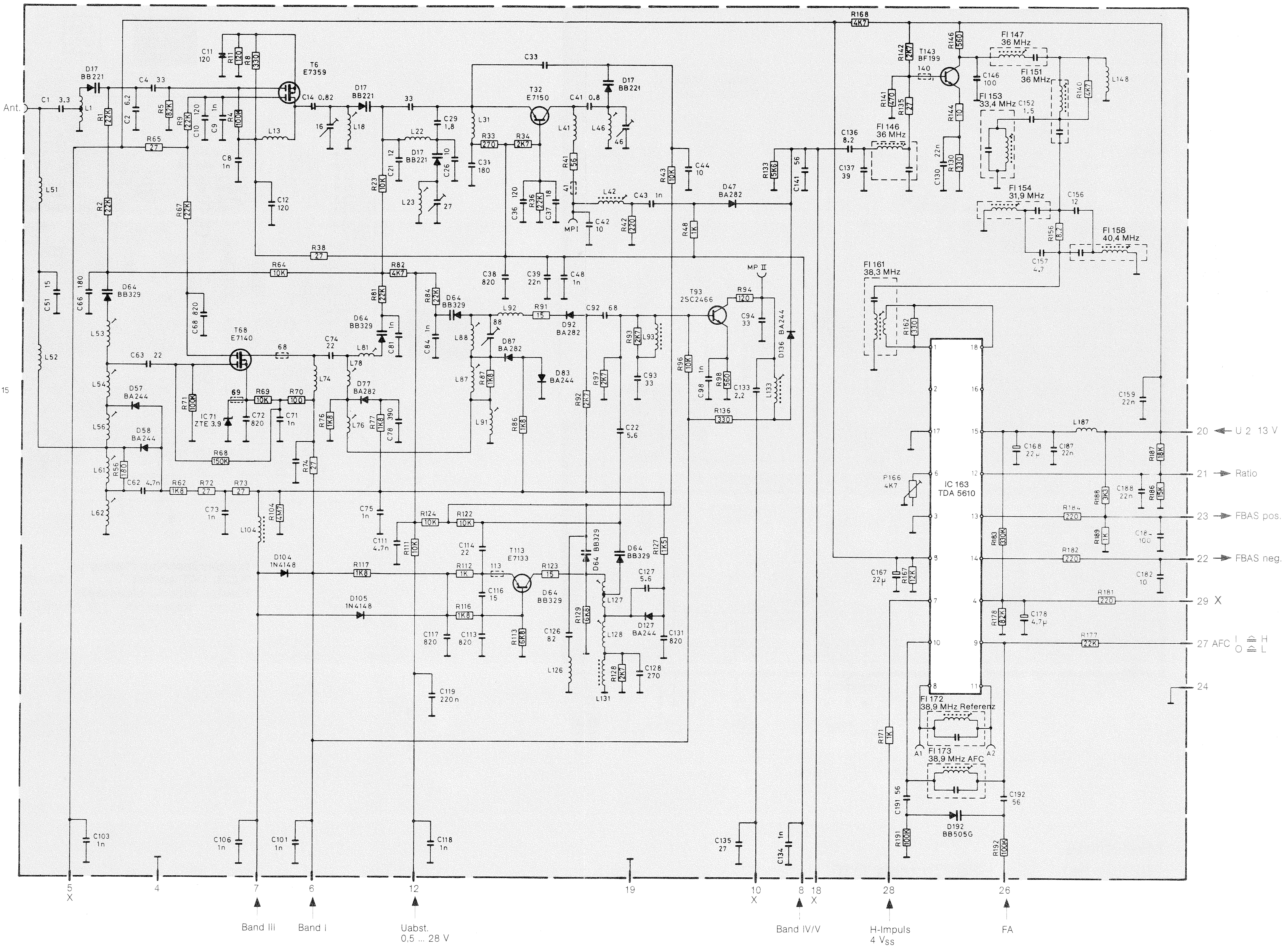

16 17 13
F F
fosc/64
fosc6n64
n=1024...16383
=1
PHASE DET.
Uabst
15
band selection
18 BIT SHIFT-REG registro di scorrim. and MEMORY memoria
Referenz riferimento 4 MHz
fref
fref/4096
Enable Clock Data
Q1 Q2
6 5 7
8 10 11 1 2

IC 301 TDA 4441 B


8 9
1
16
Video
AGC
AGC
11
12
7
5 6


Clock ritmo
Enable consenso
Data dati
H H L H L
band selection selezione della banda

HF-Block
RF block
Unità AF **MTS 2000** **563.794**

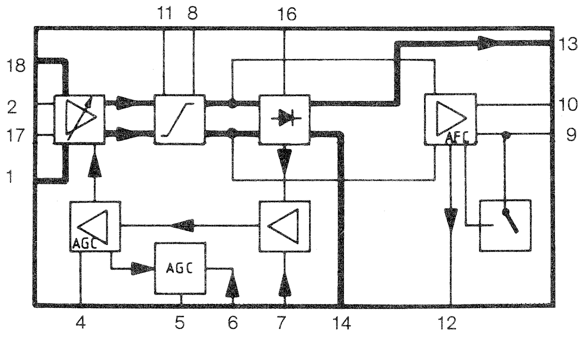

Ant.
C1 3,3
L1
D17 BB221
C4 33
C2 6,2
R1 22K
R5 82K
R9 22K
C11 120
R11 120
R8 330
T6 E7359
C14 0.82
D17 BB221
L13
L18
C33
T32 E7150
C41 0.8
D17 BB221
L22
D17 BB221
C29 1,8
L31
R33 270
R34 2K7
L41
L46
R41 56
L42
C43 1n
D47 BA282
R43 10K
C44 10
R48 1K
MPI
C42 10
R42 220
R65 27
R38 27
R64 10K
R82 4K7
C38 820
C39 22n
C48 1n
MP II
T93 2SC2466
R94 120
C94 33
D136 BA244
D64 BB329
R81 22K
D64 BB329
L92
R91 15
D92 BA282
C92 68
R93 2K7
L93
T68 E7140
C63 22
C74 22
L81
L78
D77 BA282
L74
D87 BA282
D83 BA244
L87
L88
R96 10K
R98 560
C133 2,2
L133
R136 330
D57 BA244
D58 BA244
L51
L52
L53
L54
L56
L61
L62
R71 100K
IC71 ZTE 3,9
R69 10K
R70 100
C72 820
C71 1n
R68 150K
R76 1K8
R77 1K8
L76
C78 390
R86 1K8
L91
C22 5,6
C62 4,7n
R62 1K8
R72 27
R73 27
R74 27
C73 1n
L104
R104 4K7
C75 1n
C111 4,7n
R111 10K
R124 10K
R122 10K
C114 22
T113 E7133
D104 1N4148
R117 1K8
R112 1K
C116 15
R123 15
D64 BB329
D64 BB329
C127 5,6
L127
D127 BA244
C131 820
R127 1K5
D105 1N4148
R116 1K8
C117 820
C113 820
R113 6K8
C126 82
R129 6K8
L128
L126
L131
R128 2K7
C128 270
C119 220n
C103 1n
C106 1n
C101 1n
C118 1n
C135 27
C134 1n
R168 4K7
R142 2K7
T143 BF199
R146 560
Fi 147 36 MHz
C146 100
Fi 151 36 MHz
L148
R140 4K7
Fi 153 33,4 MHz
C152 1,5
C136 8,2
C137 39
Fi 146 36 MHz
R133 5K6
C141 56
R130 330
C130 22n
Fi 154 31,9 MHz
C156 12
R156 8,2
Fi 158 40,4 MHz
C157 4,7
Fi 161 38,3 MHz
R162 330
IC 163 TDA 5610
P166 4K7
C168 22µ
C187 22n
L187
R187 18K
C159 22n
R188 3K3
C188 22n
R186 15K
R184 220
R189 1K
C189 100
R183 330K
R182 220
C182 10
C167 22µ
R167 12K
R181 220
R178 8K2
C178 4,7µ
R177 22K
Fi 172 38,9 MHz Referenz
Fi 173 38,9 MHz AFC
A1 A2
R171 1K
C191 56
C192 56
D192 BB505G
R191 100K
R192 100K
20 U 2 13 V
21 Ratio
23 FBAS pos.
22 FBAS neg.
29 X
27 AFC I O H L
24
5 X
4
7
6
12
19
10 X
8
18 X
28
26
Band III
Band I
Uabst. 0,5 ... 28 V
Band IV/V
H-Impuls 4 Vss
FA

X nicht angeschlossen
X not connected
X non collegate

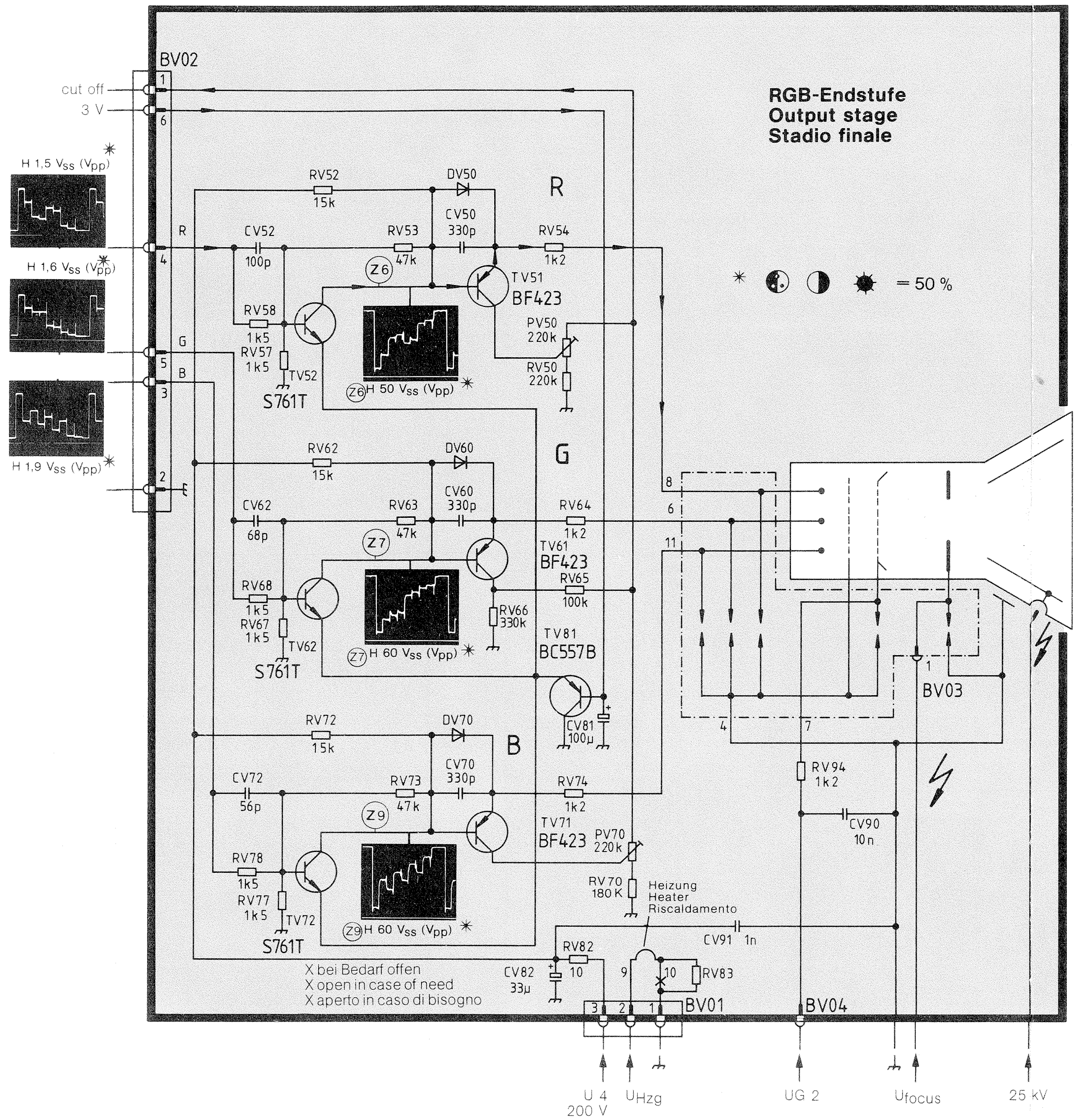
Bandumschaltung
Band switch
Commutazione di banda

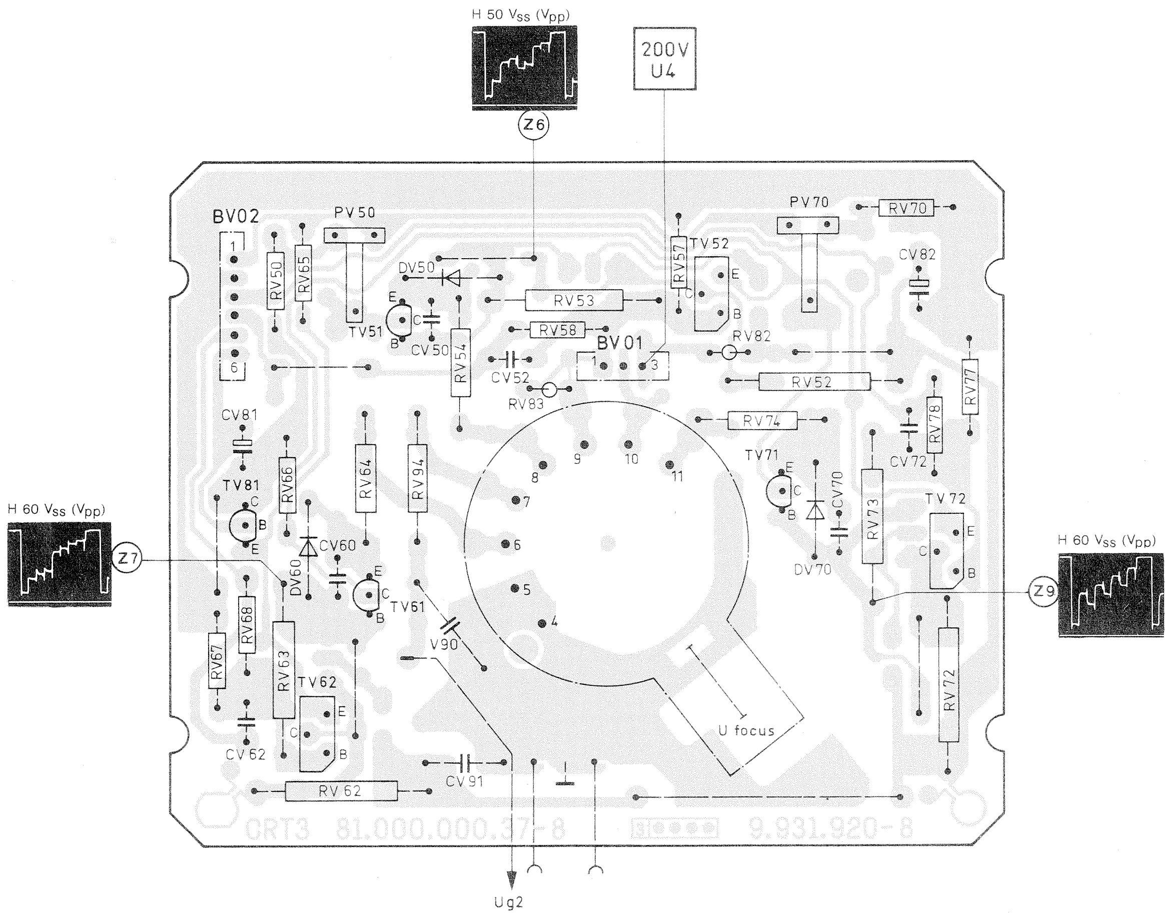
6	7	8	Pin
12 V	−1,5 V	0 V	Band I
0 V	12 V	0 V	Band III
0 V	0 V	12 V	Band IV/V

IC 163
TDA 5610

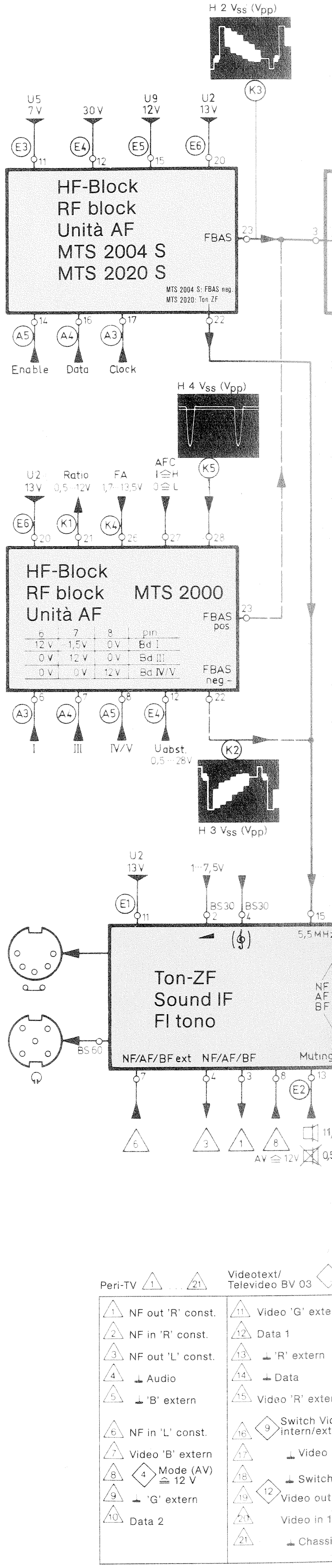

11 8
16
18
2
17
1
13
10
9
AFC
AGC
AGC
4
5
6
7
14
12

Bildrohranschluß-Platine
P.C.B. CRT socket 592.802.B
Piastra zoccolo cinescopio


BV02
cut off
3 V
H 1,5 Vss (Vpp)
H 1,6 Vss (Vpp)
H 1,9 Vss (Vpp)
RGB-Endstufe
Output stage
Stadio finale
R
G
B
RV52 15k
DV50
CV50 330p
CV52 100p
RV53 47k
RV54 1k2
TV51 BF423
PV50 220k
RV50 220k
RV58 1k5
RV57 1k5
TV52 S761T
Z6 H 50 Vss (Vpp)
RV62 15k
DV60
CV60 330p
CV62 68p
RV63 47k
RV64 1k2
TV61 BF423
RV65 100k
RV66 330k
TV81 BC557B
RV68 1k5
RV67 1k5
TV62 S761T
Z7 H 60 Vss (Vpp)
CV81 100µ
RV72 15k
DV70
CV70 330p
CV72 56p
RV73 47k
RV74 1k2
TV71 BF423
PV70 220k
RV78 1k5
RV77 1k5
TV72 S761T
Z9 H 60 Vss (Vpp)
RV94 1k2
CV90 10n
RV70 180 K
Heizung
Heater
Riscaldamento
RV82 10
CV82 33µ
CV91 1n
RV83
BV01
BV03
BV04
= 50 %
X bei Bedarf offen
X open in case of need
X aperto in caso di bisogno
U 4 200 V
UHzg
UG 2
Ufocus
25 kV


H 50 Vss (Vpp)
Z6
200V U4
BV02
PV50
PV70
RV70
CV82
TV52
RV57
DV50
RV53
RV58
BV01
RV82
CV52
RV83
RV52
RV74
RV50
RV65
TV51
CV50
RV54
CV81
TV81
RV66
RV64
RV94
TV71
CV70
CV72
TV72
RV73
RV78
RV77
DV70
H 60 Vss (Vpp)
Z7
Z9
DV60
CV60
TV61
V90
RV68
RV67
RV63
TV62
CV62
RV62
CV91
RV72
U focus
CRT3 81.000.000.37-8
9.931.920-8
Ug2

Bildrohranschluß-Platine
P.C.B. CRT socket **592.802.B**
Piastra zoccolo cinescopio
Lötseite – Soldered side – Lato saldature

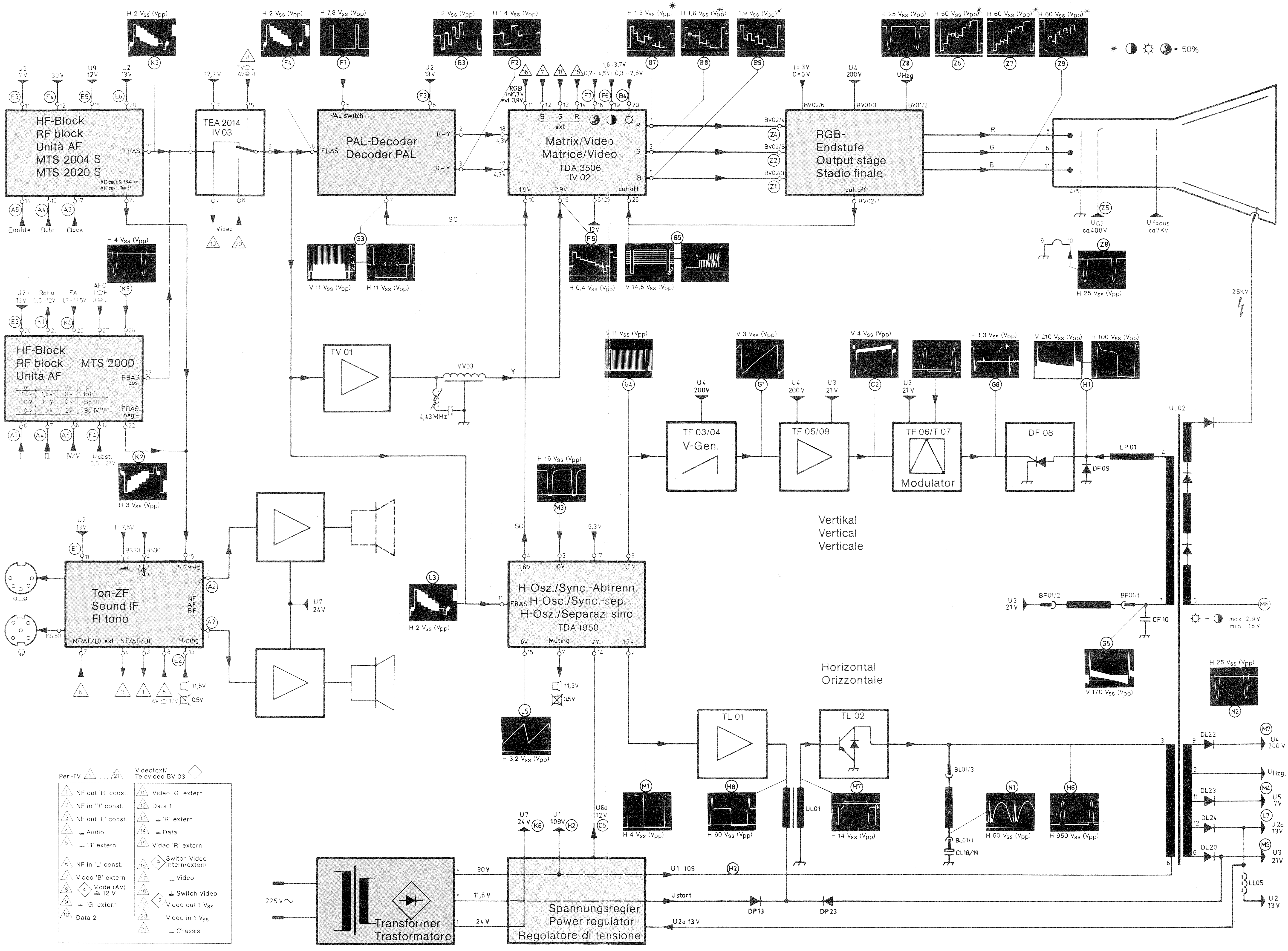

H 2 Vss (Vpp)
K3
U5 7 V
30 V
U9 12 V
U2 13 V
E3
E4
E5
E6
HF-Block
RF block
Unità AF
MTS 2004 S
MTS 2020 S
FBAS
MTS 2004 S: FBAS neg.
MTS 2020: Ton ZF
A5
A4
A3
Enable
Data
Clock
H 4 Vss (Vpp)
U2 13 V
Ratio
FA
AFC
K5
K1
K4
HF-Block
RF block
Unità AF
MTS 2000
FBAS pos
FBAS neg
Uabst
K2
H 3 Vss (Vpp)
U2 13 V
E1
BS30
5,5 MHz
Ton-ZF
Sound IF
FI tono
NF/AF/BF ext
NF/AF/BF
Muting
E2
Peri-TV
Videotext/ Televideo BV 03
NF out 'R' const.
NF in 'R' const.
NF out 'L' const.
Audio
'B' extern
NF in 'L' const.
Video 'B' extern
Mode (AV) ≙ 12 V
'G' extern
Data 2
Video 'G' exte
Data 1
'R' extern
Data
Video 'R' exte
Switch Vid intern/ext
Video
Switch
Video out
Video in 1
Chassi

Modulliste
Module list FFS-Chassis F 10
Lista moduli

Gerätename Model Modello	Typen-Nr. Model nr. No. del tipo	Bedienteilsystem System control unit Sistema elemento di comando	Chassis-Nr. Chassis nr. No. del telaio	Leiterplatte, kpl., Netzteil P.C.B., cpl., power unit Piastra, cpl., di rete	HF-Block, kpl. RF block, cpl. Modulo AF, cpl.	Ton-ZF-Modul Sound-IF-module Modulo FI-audio	PAL-Decoder-Modul PAL-Decoder-module Modulo PAL-decoder	Bildrohranschluß-Platine, cpl. P.C.B., cpl., CRT socket Piastra, cpl., zoccolo cinescopio
SC 1432	983.530 A/J	16-Tasten-Bedienteil 16 buttons control unit Elemento di comando a 16 tasti	783.500.B 00 55	592.620	563.794 MTS 2000	592.650	592.651 592.675*	592.802
Color 3432 Color 3432-VT	983.532.A 983.533.A	telecontrol 2102	783.500.B 00 55	592.620	563.794 MTS 2000	592.650	592.651 592.675*	592.802
Color 3536 Color 3538	983.514.J 983.516.J	telecontrol 2239	783.516.A 00 95	592.620	563.799 MTS 2004-S	592.650	592.651 592.675*	592.802.B
Color B-6410 Color B-6412	983.525.J 983.537.J	telecontrol 2336	783.502.B 00 53	592.620	563.796 MTS 2020-S	592.650	592.651 592.675*	592.802

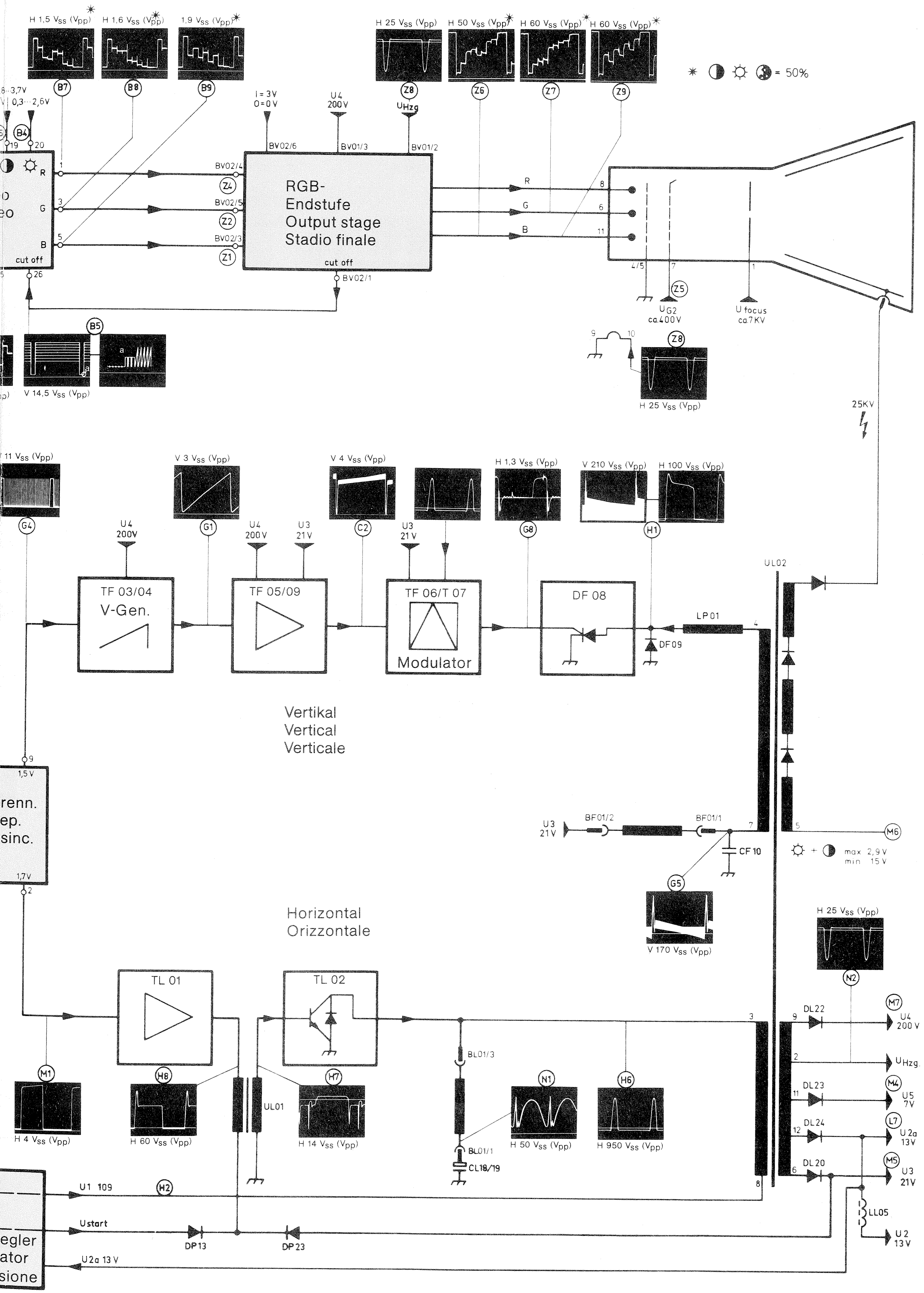
*wahlweise / alternative / sostitutivo

Blockschaltbild – Block diagram – Circuito a blocco   FFS Chassis F 10


HF-Block
RF block
Unità AF
MTS 2004 S
MTS 2020 S
MTS 2004 S: FBAS neg.
MTS 2020: Ton ZF
FBAS
Enable
Data
Clock
TEA 2014
IV 03
Video
PAL switch
PAL-Decoder
Decoder PAL
FBAS
B-Y
R-Y
SC
Matrix/Video
Matrice/Video
TDA 3506
IV 02
ext
cut off
RGB
int 0,3 V
ext 0,9 V
RGB-
Endstufe
Output stage
Stadio finale
cut off
BV02/4
BV02/5
BV02/3
BV02/1
BV02/6
BV01/3
BV01/2
UHzg
U G2 ca.400 V
U focus ca.7 KV
25KV
* ◑ ☼ ◍ = 50%
HF-Block
RF block
Unità AF
MTS 2000
FBAS pos
FBAS neg -
Ratio
AFC
Uabst.
TV 01
VV03
Y
4,43 MHz
Ton-ZF
Sound IF
FI tono
5,5 MHz
NF AF BF
NF/AF/BF ext
NF/AF/BF
Muting
H-Osz./Sync.-Abtrenn.
H-Osc./Sync.-sep.
H-Osz./Separaz. sinc.
TDA 1950
FBAS
Muting
TF 03/04
V-Gen.
TF 05/09
TF 06/T 07
Modulator
DF 08
DF09
LP01
UL02
Vertikal
Vertical
Verticale
Horizontal
Orizzontale
BF01/2
BF01/1
CF 10
☼ + ◑ max 2,9 V min 1,5 V
TL 01
TL 02
UL01
BL01/3
BL01/1
CL18/19
DL22
DL23
DL24
DL20
LL05
U4 200 V
UHzg
U5 7V
U2a 13V
U3 21V
U2 13V
Transformer
Trasformatore
225 V~
80 V
11,6 V
24 V
Spannungsregler
Power regulator
Regolatore di tensione
U1 109
Ustart
U2a 13 V
DP13
DP23
H 2 Vss (Vpp)
H 7,3 Vss (Vpp)
H 1,4 Vss (Vpp)
H 1,5 Vss (Vpp)
H 1,6 Vss (Vpp)
1,9 Vss (Vpp)
H 25 Vss (Vpp)
H 50 Vss (Vpp)
H 60 Vss (Vpp)
H 4 Vss (Vpp)
H 3 Vss (Vpp)
V 11 Vss (Vpp)
H 11 Vss (Vpp)
H 0,4 Vss (Vpp)
V 14,5 Vss (Vpp)
V 3 Vss (Vpp)
V 4 Vss (Vpp)
H 1,3 Vss (Vpp)
V 210 Vss (Vpp)
H 100 Vss (Vpp)
H 16 Vss (Vpp)
V 170 Vss (Vpp)
H 3,2 Vss (Vpp)
H 60 Vss (Vpp)
H 14 Vss (Vpp)
H 50 Vss (Vpp)
H 950 Vss (Vpp)

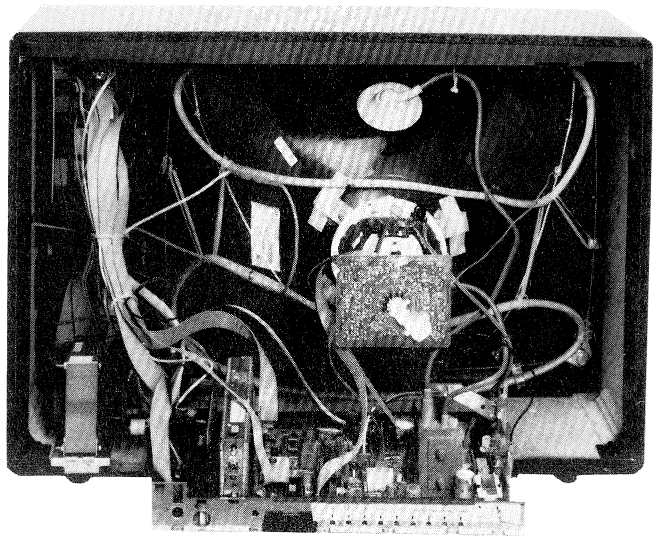
Peri-TV △1 … △21   Videotext/Televideo BV 03 ◇

△1 NF out 'R' const.	△11 Video 'G' extern
△2 NF in 'R' const.	△12 Data 1
△3 NF out 'L' const.	△13 ⊥ 'R' extern
△4 ⊥ Audio	△14 ⊥ Data
△5 ⊥ 'B' extern	△15 Video 'R' extern
△6 NF in 'L' const.	△16 ◇9 Switch Video intern/extern
△7 Video 'B' extern	△17 ⊥ Video
△8 ◇4 Mode (AV) ≙ 12 V	△18 ⊥ Switch Video
△9 ⊥ 'G' extern	△19 ◇12 Video out 1 V_{ss}
△10 Data 2	△20 Video in 1 V_{ss}
	△21 ⊥ Chassis


H 1,5 Vss (Vpp)
H 1,6 Vss (Vpp)
1,9 Vss (Vpp)
H 25 Vss (Vpp)
H 50 Vss (Vpp)
H 60 Vss (Vpp)
H 60 Vss (Vpp)
* ◑ ☼ = 50%
B7
B8
B9
Z8
Z6
Z7
Z9
3,7V
0,3…2,6V
B4
19
20
I = 3V
0 = 0V
U4
200V
UHzg
BV02/6
BV01/3
BV01/2
R
G
B
cut off
26
BV02/4
BV02/5
BV02/3
Z4
Z2
Z1
RGB-
Endstufe
Output stage
Stadio finale
cut off
BV02/1
R
G
B
8
6
11
4/5
7
1
UG2
ca.400V
Z5
U focus
ca.7KV
B5
V 14,5 Vss (Vpp)
9
10
Z8
H 25 Vss (Vpp)
25KV
11 Vss (Vpp)
V 3 Vss (Vpp)
V 4 Vss (Vpp)
H 1,3 Vss (Vpp)
V 210 Vss (Vpp)
H 100 Vss (Vpp)
G4
U4
200V
G1
U4
200V
U3
21V
C2
U3
21V
G8
H1
UL02
TF 03/04
V-Gen.
TF 05/09
TF 06/T 07
Modulator
DF 08
LP01
DF09
Vertikal
Vertical
Verticale
9
1,5V
renn.
ep.
sinc.
1,7V
2
U3
21V
BF01/2
BF01/1
7
5
M6
☼ + ◑ max 2,9V min 15V
CF 10
G5
V 170 Vss (Vpp)
Horizontal
Orizzontale
H 25 Vss (Vpp)
N2
TL 01
TL 02
BL01/3
3
9
DL22
M7
U4
200V
2
UHzg
DL23
11
M4
U5
7V
DL24
12
L7
U2a
13V
DL20
6
M5
U3
21V
M1
H8
UL01
H7
N1
H6
H 4 Vss (Vpp)
H 60 Vss (Vpp)
H 14 Vss (Vpp)
BL01/1
CL18/19
H 50 Vss (Vpp)
H 950 Vss (Vpp)
8
U1 109
H2
Ustart
DP13
DP23
LL05
U2
13V
U2a 13V
egler
ator
sione

TECHNISCHER KUNDENDIENST

Service-Information



FFS-Chassis F 10

783.500.B 00 55
783.502.B 00 53
783.516.A 00 95

2. überarbeitete Auflage
2nd revised edition
2. Edizione verificata

NORDMENDE

Diese Angaben und Hinweise sind ausschließlich für den Service des Fachhändlers bestimmt · Änderungen vorbehalten · These instructions are for service dealers only · Subject to modification · Questi dati e queste istruzioni sono riservati ai tecnici del servizio assistenza · Con riserva di modifiche

2000/113/01